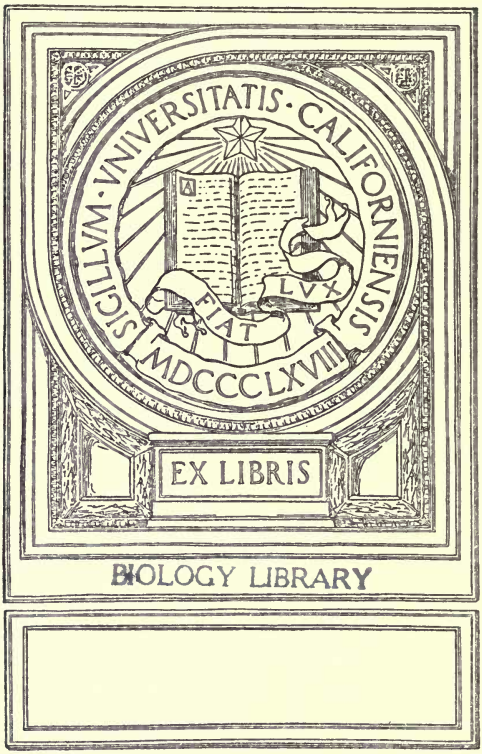
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THE NATURALIST IN NORWAY.

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GUDBRANDSDALEN.

THE

NATURALIST IN NORWAY;

OR,

NOTES ON THE WILD ANIMALS, BIRDS, FISHES, AND PLANTS, OF THAT COUNTRY.

WITH SOME ACCOUNT OF

The Principal Salmon Rivers.

BY

REV. J. BOWDEN, LL.D.,

AUTHOR OF 'NORWAY, ITS PEOPLE, PRODUCTS, AND INSTITUTIONS,' 'GUIDE TO NORWAY,' ETC.

LONDON:

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ETC. ETC. ETC.,

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BY HIS LORDSHIP'S GRATEFUL SERVANT,

THE AUTHOR.

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THE NATURALIST IN NORWAY.

CHAPTER I.

The Zoological Museum at Christiania.—Rare Birds.—Wild Animals.—The Game Laws of Norway.—A "Heavy Fine."—The Brown Bear.—Ancient Writers.—The Bear in Winter Quarters.—Modes of Capturing it.—Its Strength.—Its Size.—The Best Time for Hunting Bears in Norway.—The Tailor and the Bears.—Norwegian Proverb.

THE English sportsman or naturalist will be much pleased with the Zoological Museum at Christiania, the present capital city of Norway. Here may be seen fine specimens of almost every kind of bird, fish, insect, or wild animal, to be found in this interesting country. The Lapland gray owl (*Strix Lapponica*, Retz), Pallas's sand grouse, the roller (*Coraccias garrula*), the wandering albatross (*Diomedia exulans*), the glossy ibis (*Ibis falcinellus*), and many other rare birds, all of which have been shot or captured in Norway, are to be seen in this museum. Here also may be observed the common brown bear, the white bear, the Norwegian wolf, the lynx (*Felis lynx*), the reindeer, the elk, etc.

An eminent Norwegian naturalist once remarked to me, "My country can well spare some of its wild animals and birds of prey." In a single year in Norway (1855), 205 bears, 235 wolves, 125 lynxes, and 2559 eagles and other birds of prey, were killed or taken alive. This number includes only those that were brought to the *foged*, or sheriff, by the peasants, for the sake of the head-money. If we add to this list those animals and birds that were destroyed by sportsmen and others, we can form an estimate of this kind of sport in Norway.

The following are the Game Laws of Norway now in vogue:—

The reindeer may be hunted from August 1st to April 1st.

Elk hunting continues for only three months in the year, viz. during August, September, and October.

The Norwegian hare (*Lepus variabilis*) may be killed from August 15th to June 1st.

The blackcock, male capercaillie, eider-duck, and *hjerpe* (hazel grouse), from August 15th to June 1st.

The gray hen and female capercaillie, from August 15th to the middle of March.

The partridge from the beginning of September to the beginning of January.

The penalty for shooting an elk out of season varies from 40 to 60 sp. dollars; for a reindeer, 10 sp. dollars; for a hare, 2 sp. dollars; for birds, 1 sp. dollar. The *rype* (white grouse) is not preserved by law.

The game laws are not strictly enforced in Norway. I have seen elk venison offered for sale in the streets of Christiania during the close season, and most game-birds are snared in this country at forbidden seasons.

The eider duck is not allowed to be killed north of Throndjem (Drontheim) at any time of the year.

The following incident may be mentioned as characteristic of the treatment of poachers in Norway. An Englishman travelling in this country found on his arrival at a certain post-station that no horses were in readiness for him. The postmaster, however, hinted that some good wild-duck shooting was to be had on a neighbouring sheet of water. Now most Englishmen are fond of sport, and the one mentioned was no exception to the general rule, so he sallied forth for a raid on the wild ducks. Arrived at the water's side, the traveller found a boat almost inviting him for an excursion; so getting into it, he paddled himself into the middle of the small lake, where he managed to bag several brace of wild ducks. The trespasser was not fated to get off scot-free, for, on returning to land with the spoils of the chase, he found an enraged *bonde*, or peasant, awaiting him, who vehemently demanded how he dared to shoot his wild ducks. A visit to the nearest *foged* was threatened, and a "heavy fine" was mentioned. The Englishman began to have visions of imprisonment, with, of course, a sudden and disagreeable termination of his journey; but, on asking what the "heavy fine" was to be, the farmer sternly demanded six skillings, a sum rather less than threepence, English money. The Englishman paid the fine, and carried off the wild ducks.

The Wild Animals of Norway.

Norway forms the western half of the Scandinavian peninsula, and contains 121,800 square miles, of which only a small portion is in a state of cultivation. The

greater part consists of large tracts of forest and mountain lands, which abound with wild animals. Here Nature reigns supreme.

The brown bear (*Ursus arctus*) is pretty common in all parts of this country, especially in Nordland and the central districts. It is but seldom seen in the neighbourhood of Christiania.

It was for a long time believed that two or three different kinds of bears were to be found in Norway. Pontoppidan, Bishop of Bergen, who wrote in the middle of the eighteenth century, remarks, "Bears are most commonly found in the Bergen and Throndjem Stifts, and they are of two kinds, viz. the *hesterbjorn*, or horse-bear, somewhat larger, and the *myrebjorn*, or ant-bear, somewhat smaller." Another ancient scribe, Olaus Wormius, affirmed that no less than three different species were to be found in Norway. "People have observed," says this old writer, "three kinds of bears in Norway. The first very large, not altogether black, but brown; not quite so hurtful as the other kinds, for it feeds on grass and the leaves of trees, being found in desert places and vast woods, where it lays up stores of nuts and acorns before the winter approaches. The second kind is less in size and blacker in colour, carnivorous, hostile to horses and other animals, a most voracious creature. A third kind, which is the least hurtful, which they call the ant-bear, because it delights in ants, and overturns their nests in order to gain possession of them."

It is now acknowledged by Norwegian naturalists that only one kind of bear is to be found in Norway, viz. the common brown bear. It is true that bears are sometimes seen in this country that are blackish-

brown, rufous-brown, and even gray in colour, but the difference is to be attributed to age, or to the effects of climate.

It is commonly believed in Norway that when the bear retires to his winter quarters, he stops up the intestinal canal with a plug, called in this country the *tappen,* and remains without food during the whole season of hybernation. During that period, Bruin is supposed to exist by sucking his paws. It is possible that the he-bear may be able to maintain life in winter without food, but it can hardly be so with the female, as she brings forth her young in Norway by about the beginning of January, when she must have necessary food, otherwise she would be unable to suckle her offspring. She produces two cubs at a birth, and selects the time when the male has retired to his *hie,* or den, so that he may not devour the young ones. The cubs when born are naked and blind, but the mother soon licks them into shape, according to the saying, "*Lambendo sicut ursa catulos.*" The young bears are, at first, about as large as puppies; but they grow fast, and the she-bear, like an attentive nurse, holds them to her breast with her paws to keep them warm, and to protect them from danger.

In Norway, bears are hunted with small dogs, which are trained for the purpose. When brought to bay, the dogs run in and attack the bear in its tender parts, when the hunter comes up, and puts a rifle ball through its head. Sometimes it is taken in deep pitfalls, and in large traps. The bear is apt to frequent the same locality for a long time, when it is exceedingly destructive to the farmer's cattle. When this happens, notice is given to all the able-bodied men in the dis-

trict, who are obliged to assemble armed at a given place and on a fixed day. A *cordon* is then formed, the circle of hunters is gradually narrowed, and the bear generally falls a victim to its marauding habits.

The Norwegian bear is not a very dangerous animal when left alone. It very seldom attacks human beings, but gets out of their way when possible. On asking a Norwegian friend—an ardent sportsman—if he had encountered many bears in his hunting expeditions, I received the following reply:—"I have killed thirty-one bears in my time, and was never attacked by one. I have frequently, when unarmed, met them in the woods, when they appeared quite as eager to escape from me as I was anxious to avoid them." On another occasion, I asked an old Norwegian peasant woman if she had ever met a bear in her part of Norway, "Oh, bless you, yes, often," was her answer; "but they never did me any harm. I have often passed one on a high hill near our village, and so close that I could almost have touched it."

A Norwegian bear, when about three years old, will weigh about 350 pounds. It feeds in this country on grass, on various kinds of herbs, and especially on the wild berries which grow so abundantly in some parts of this northern land. It is said that when Bruin has fed for some time on wild berries, his teeth get so set on edge that he longs for animal food, when he attacks and kills horses, cows, calves, sheep, and goats. These forays generally take place in autumn, when the animal becomes so fat by the indulgence of his carnivorous tastes, that he can retire to his *hie*, and remain in a torpid state throughout the winter. It is quite certain that when he makes his appearance

Vincent Brooks, Day & Son, lith.

A NORWEGIAN PEASANT'S ENCOUNTER WITH A BEAR.

in the spring, he is lean and emaciated, and is not a very formidable antagonist. On this account, the best time for bear-hunting in Norway is in the early spring, when the animal is fresh from his winter quarters, or in the autumn, when he is about to retire, for a time, from the haunts of men. During the summer months, he becomes a denizen of the impenetrable forests, and is seldom seen abroad.

Many interesting stories are narrated in this country concerning bears, of which the following is a specimen. A *bonde* was one day felling trees in a forest, and was accompanied by a favourite goat, the pet of his children. A bear unluckily came by that way, attacked and killed the goat, but took no notice of the honest peasant. The latter, enraged at his loss, seized his gun, which was close at hand, and wounded the bear, but not in a vital part. Then there ensued a combat as fierce as it was brief. The man had no time to reload his gun, but drew his short knife (*tol-kniv*), and with repeated stabs laid the bear dead at his feet.

The following "veracious history" of a bear-hunter was told to the author by a Norwegian friend. When Christiania was but a small city, bears were so common in the neighbourhood, that they were regularly hunted by some of the citizens. The most noted and most successful hunter was a brave little man, a tailor by trade, and Olé Hansen by name. Now, it unfortunately happened that this Nimrod of the Norwegian chase was troubled with a scolding wife, who considered that her husband was more profitably employed at his trade than in hunting bears. Olé was of a contrary opinion, and one day, when intelligence was

brought into the town of a bear in the vicinity, Olé armed himself as usual, and prepared to set forth. The wife, who was a big, fat woman, was determined to keep her husband at home by force on this particular occasion. The little tailor was so enraged at the attempt, that in a fit of ungovernable passion, he raised his rifle, and put an end at once to his wife and her interference. The luckless tailor was tried for the crime, and was sentenced to be decapitated. Capital offenders were then, as at the present time, beheaded with a sword. Ordinary criminals were compelled to kneel with their heads on the block; traitors were allowed the melancholy privilege of being decapitated standing. As Olé Hansen was a free-born citizen of Christiania, and, moreover, a man of some note, he was permitted to be beheaded standing. When the day for the execution arrived, crowds of weeping citizens followed the condemned man to the scaffold, for they mourned for his loss, as they considered he had been a public benefactor. The executioner, who was also a respectable citizen of Christiania, as well as a personal friend of the culprit, and had often accompanied him on his hunting expeditions, took his comrade kindly by the hand, and condoled with him. It was this worthy's intention to decapitate his friend in as skilful and expeditious a manner as he could. To do so effectually, he took out his snuffbox, and offered Olé a pinch of its contents. While the criminal was raising his fingers to his nose, a single stroke of the sword was given, and the head of the murderer rolled on the scaffold. Then followed a strange incident. For several seconds the body of the decapitated man stood upright, while the right arm moved slowly up-

wards to the head, the fingers containing the pinch of snuff, still seeking in vain for the absent nose.

The bear furnishes the Norwegian peasants with the following proverb :—"*Sœlge björnen's hud förend man har fanget dem;*" or, "To sell one's bear-skin before it is found," equivalent to the English saying, "Don't reckon your chickens before they are hatched."

The white bear is not to be met with in Norway.

CHAPTER II.

The Lynx in Norway.—Difference of Species.—Hunting the Lynx in Norway.—Its Habits.—Its Ferocity.—Its Food.—The Value of its Skin.—The Lynx and the Goat.—The Farmer and the Lynx.—An Unpleasant Predicament.—The Wild Cat in Norway.—Sport and English Sportsmen in Norway.—Hints to Sportsmen.

NATURALISTS were for a long time of opinion that more than one species of lynx was to be found in Norway, and Pontoppidan speaks of the *ulve-goupe,* or wolf-lynx; of the *rœve-goupe,* or fox-lynx; and of the *katte-goupe,* or cat-lynx. Only one species is to be met with in this country, and the mistake probably arose from the fact that the Norwegian lynx varies in colour according to the time of the year or its age.

The lynx (*Felis lynx*), called in Norway *goupe,* was formerly common in this country, but is now but rarely found, except in the central parts, and not very often there. It has, however, been killed in the neighbourhood of Christiania. In summer it abides in the mountainous and wooded districts, lying close by day in some hole or crevice of a rock, and stealing forth at night, with slow and stealthy tread, in search of its prey. It is a savage and powerful brute, and as it is

also courageous, it is a much more formidable antagonist than the cowardly wolf. When hunted by dogs —the ordinary way in Norway—it throws itself on its back, and when the dogs approach, it flings out its paws, which are armed with long, sharp, and retractile claws. Woe betide the unfortunate hound that then presumes to attack it, for it is soon ripped open by the lynx. The dogs generally keep the animal at bay, remaining at a respectful distance, but taking care that it shall not escape until the hunter comes up and shoots it through the head with his rifle. The Norwegian lynx is quite as destructive as the wolf, and seems to delight in the shedding of blood, while it kills much more than it can eat or carry off. Instances are on record, when it has been known to destroy twenty sheep in a night, leaving its victims where they have been slain, and simply sucking the blood, or eating certain dainty parts of one or two of them.

The Norwegian lynx is not gregarious, but pairs, and the male and female keep constantly together; but when the latter is accompanied by her young, she drives her mate away from her, and claws him most unmercifully if he attempts to approach the cubs. Should either of the pair be killed, the survivor is sure to return to the dead body, and the hunters conceal themselves near, knowing that they are almost certain to secure the living lynx when it comes back to sniff at, and howl round, the carcass of its defunct mate.

This animal is carnivorous, and subsists entirely on flesh. It conceals itself in the stubble, and pounces on the capercaillie, blackcock, and other large birds. When these last are scarce, it pays a nocturnal visit to the farmyard, and preys on sheep, goats, and poultry.

It is so partial to the flesh of the hare that the best bait for a lynx-trap is the dead body of poor puss.

The colour of the Norwegian lynx is generally of a light gray marked with dark spots. Some specimens are of a dark rufous-brown, spotted here and there with a darker shade. The light gray skins are the most valuable, especially when the dark spots are well defined. The young of the Norwegian lynx, when a few months old, are much like the domestic cat in appearance, except that they are thicker in frame and stronger-looking. They have also a fierce and cruel countenance. Their colour varies, and is sometimes grayish-brown, and occasionally rufous-brown.

In the middle of the last century, according to the statement of Pontoppidan, the skin of a lynx in Norway would sell for as much as twelve sp. dollars. It is now not worth more than from two to three sp. dollars. The Russians buy up all the Norwegian lynx-skins, and sell them again, at an enormous profit, to the Chinese. With the exception of the Swedish and Russian, the Norwegian lynx is larger in size than that of any other country.

Pliny speaks of a lynx which he saw at Rome in the time of Pompey, but the animal came from Gaul. It is not to be met with in France at the present time. Among the ancients the lynx was consecrated to Bacchus, for we find that the ancient poets and painters represented the god of wine as drawn in a chariot by tigers, panthers, and lynxes.

Pontoppidan gives an amusing account of an encounter between a lynx and a goat. It appears that the lynx burrows in the ground, where it conceals itself by day, so a cunning old ram (*gede-buk*) having

observed a lynx do this, stationed himself near its hole. The lynx was frightened at the venerable appearance of the ram, and refused to come out of his *hie*. Tired at length of his captivity, and troubled with the pangs of hunger, he ventured to put forth his head to take a look round him, when whack came the goat's head and horns against his cranium. This was a style of proceeding that did not suit the lynx, so he popped back into his den. The attack and retreat were repeated again and again, until at last the ram laid the lynx dead at the mouth of the hole; or, as Pontoppidan quaintly expresses it, "*at hav laae död i sin selv-gjorte grav;*" that is, "laid him dead in his self-made grave."

The following singular adventure happened some years ago to a Norwegian *bonde*, or peasant-farmer. The man had made a large and deep pitfall for the capture of wolves. Now, these pitfalls are made in such a manner that it is almost impossible for wild animals to get out of them when they have once fallen in. Then, to render them more difficult of egress, they are not only made very deep, but the sides at the top are lined with sharp pieces of iron, with the stumps of trees, and even with broken scythes. Well, the farmer set out early one morning to visit a certain pitfall which was made in a forest at a considerable distance from his homestead. On coming near to it, he knew by infallible signs that some species of wild animal had fallen into it. Approaching eagerly to discover what his prize might be, the luckless fellow overbalanced himself, and tumbled headlong into his own trap. Escape was impossible, as it would have required a ladder for the man to have got out again.

Dinner and supper time came and passed, but the farmer did not put in an appearance at home. "Oh!" said the wife, "Peder has gone to the town to buy something." When, however, the next day passed, and no Peder appeared, the family became alarmed, and the man's younger brother went in search of him. In due time he arrived also at the mouth of the pitfall. Finding his brother in the trap, his first thought was to stretch down his hand and drag the captured man out by main force. The weight was, however, too great, and, overbalancing himself, the second farmer fell into the pit. This was an awkward predicament, especially when it was discovered that a lynx was a companion of their captivity. But this animal is by nature a coward, and, when captured in the way I have described, it will sneak into a corner, whence it will not budge unless driven out by dogs or a long pole. At first the men thought of attacking the lynx, but they soon gave up the intention; they felt, in fact, some pity for the poor brute that was shivering near them. They had, also, quite enough to do in puzzling their brains in order to hit upon some expedient by which they might escape from their prison. The fates were unpropitious, and they remained in durance vile for two days and two nights, when they were found by their friends and released. They also very good-naturedly set the lynx at liberty as well.

The flesh of the lynx is eaten in Norway, and is not considered unpalatable. It is by no means tender, but resembles in flavour the flesh of a tough old goat.

The Norwegian peasants believe that if a person wears a necklace made of the fore-claws of a lynx, it

will preserve him from spasms and the cramp. It would appear that the Russians entertain a somewhat similar superstition, for when they sell lynx-skins to the Chinese, they charge a much higher price for them if the fore-claws are included.

The wild cat (*Felis catus*) is pretty common in woods of deciduous trees in the south of Norway, especially in the neighbourhood of Tonsberg. It is rather larger in size than the domestic cat, and varies in colour, being brown, gray, and sometimes light blue. When captured young it is easily tamed, but it is not a favourite in households, as its habits are dirty. This creature is an excellent swimmer, and dives readily under water in pursuit of rats. The young of this species are grotesque little things; they have hair six inches long, and a large unwieldy head, but are very playful.

Sport in Norway.

There is no *battue* shooting in this country; and sport, so called, is very different here to what it is in Great Britain. The English sportsman who bags his eight or ten brace of birds in a single day here, will have reason to consider himself lucky, while the labour will be great. But the healthy exercise, the pure mountain air, the grand and picturesque scenery, and the entire absence of constraint, will have the most exhilarating and wholesome effects on the constitution of a man in good health. No delicate person should think of undertaking a journey in this country, either for sport or pleasure.

Some of the best sport in Norway is to be had in Thelemarken, a district reached without difficulty from

Christiania *viâ* Drammen and Kongsberg. In the wide expanse of country called Thelemarken, there are rapid rivers, lofty mountains, romantic waterfalls, charming valleys, extensive forests, and picturesque mountain lakes. Here may be seen the Rjukandfos, or reeking waterfall, a stupendous cascade which is formed by a rapid river that, falling over rocks, precipitates itself to a depth of 900 feet. The following account of this magnificent waterfall is taken from Everest's 'Norway':—"Many a waterfall did we pass this day which in other places would have been a theme of wonder, but was here without a name. At last we saw a light cloud of vapour resting on the side of the hill. The atmosphere around was clear, but it remained steadfast, like the spirit of the waters; this was the Rjukan (Reeking). We left our horses at a small plot of ground which afforded room for two or three sheds, and then had more than a mile to go on foot along a goat's track, for the valley had now become nothing more than a great cleft in the rock. We crept forward, however, sometimes on a narrow ledge of the bare slate, nearly perpendicular; at others clinging to the bushes of birch and fir, till the falling river opened upon us. It comes from the distance tumbling down a slope, and distorted by the rocks that oppose it, till it reaches the spot where they separate, and shoots into the depths below. It appears as fine and fleecy as white wool or cotton; and though the vapour obscures everything near it, yet in looking over the cliff you can discern shoots of foam at the bottom like rockets of water radiating in every direction. A low sound and vibration appear to come from beneath one's feet. As I hung half-giddy on the

steep, and turned my eyes opposite to the mountain mass that breasted me, its black sides seemingly within a stone's throw, and its snowy head far in the clouds above, my thoughts involuntarily turned to Him at whose bidding it upsprang. I long gazed upon this wonderful scene, which seemed like the end of the world. It still floats before me like a dream."

The celebrated Gousta Fjeld is in this neighbourhood, and may be ascended from Dal. The mountain is 5688 feet high, and embraces a most extensive prospect, extending to a distance of 70 English miles. It is distinctly seen from the neighbourhood of Christiania.

Reindeer may occasionally be found on the Gousta Fjeld.

There is an abundance of trout in the lakes of Thelemarken, and good salmon-fishing may be had in some of its rivers. A bear may sometimes be found in the forests, while a few reindeer resort to the higher fjelds.

Another part of Norway justly celebrated for its sport is Gudbrandsdalen, on the direct route from Christiania to Throndjem. The scenery of this part of the country is extremely romantic and picturesque during the summer months; indeed, travellers have asserted that the most beautiful scenery in the whole of Norway is to be found in this lovely and extensive dale. Here, also,—that is to say in the mountains,—the best reindeer-shooting is to be had; while the *rype*, or white grouse, the *hjerpe*, or hazel grouse, the blackcock, and capercaillie are common.

It may be said that all the Norwegian rivers abound in trout and salmon, although the latter are more

numerous, and are larger in size, in the northern rivers of this country.

The English sportsman in Norway will do well to supply himself before starting with guns, ammunition, and fishing-tackle. These articles may certainly be purchased in the larger Norwegian towns, but they are very inferior in quality. In hunting the bear, the Norwegian *bonde* uses a roughly-manufactured kind of rifle, a breech-loader, a specimen of native skill; but he is expert in the handling of it. It is by no means an unserviceable weapon, and costs about 12 sp. dollars, or £3 English money. Norwegian powder is coarse and gritty, and is liable to miss fire,—an awkward circumstance when the sportsman is standing face to face with a savage bear, determined not to turn tail. The English sportsman in Norway should also have plenty of warm clothing, for the climate is variable—extremely cold on the mountains, and very damp on the west coast. The best general wearing apparel in this country is flannel shirts and tweed suits. A waterproof sheet will also be found very useful when camping out.

The Norwegians have some very singular notions about English sportsmen in general. They appear to think that every Englishman carries a gun in his pocket, and that he has a bulldog concealed somewhere. Opinions of this kind, however, are not confined to Norwegians. Our northern friends also give us the credit of being thorough cockneys in our amusements. They tell a story at Christiania of an English Nimrod who arrived there per steamer for the purpose of shooting bears. After looking about him a little, this worthy adventurer is reported to

have inserted an advertisement in the newspapers for furnished apartments on the outskirts of the town. The parlour was to be on the second floor, so that the sportsman might shoot the bears as they passed his window! Such opinions are harmless enough, and none are the worse for them.

CHAPTER III.

The Elk in Norway.—Its Description.—Where Found.—The Penalty for Killing an Elk out of Season.—Food of the Elk.—Modes of Capturing the Elk in Norway.—Habits of the Elk.—Medicinal Virtues.—Snow Skates.—Candidates for Office.—A Singular Race.

The elk (*Cervus alces*), which has been called the "antlered monarch of the north," is said to have found its way into Sweden when Scania, its southern province, was connected with Germany. It was at one time very common in Norway; so much so, that there was no law for its preservation; and, as it was hunted throughout the year by the Norwegian peasants, it was becoming extinct; but, having been strictly preserved during the last few years, it is now on the increase.

The elk, called in Norway *elg, els-dyr*, is a large unwieldy animal, with a huge head and high shoulders. It is, however, capable of very rapid flight when pursued.

The colour of this animal is dark brown, and the hair on the skin is long and coarse; a tuft of hair hangs down under its neck. The horns are short and palmated, and have from five to seven points.

The Norwegian elk is now most common in Hede-

marken, especially in Österdalen. It is to be occasionally seen in the neighbourhood of Christiania, and it is even said that once upon a time an elk was killed in the streets of the Norwegian capital. I have seen the head and horns of an elk which was shot in the Ringerige district in November, 1862. The *bonde* who had shot the animal was offering the venison for sale in the Christiania market at 4*d*. per pound.

The elk is now strictly preserved in Norway; the time for shooting it extends from August 1st to October 31st. The owner of a landed estate may only shoot a single elk on his property during the season. He may transfer his right of shooting to another, but in that case he must refrain himself. The penalty for killing an elk out of season is as high as 60 sp. dollars; but, notwithstanding this, many elks find their way into the peasant's pot at unlawful times. The Norseman is a hardy hunter, and nothing will detain him from his favourite pursuit; while it must be confessed that elk-hunting is most exciting sport. When a Norwegian peasant kills an elk, he either sells it in the nearest town, or salts it down for winter use. Almost everything in the shape of animal food that comes into the possession of the *bonde* goes into his pickle-tub. He exhibits a decided preference for salt provisions. He eats his ham, salmon, or red-herring raw, and has a strong *penchant* for the smoked breast of a goose, which would be considered spoilt by him if cooked. Salted elk and reindeer venison, and salted herrings, form the staple winter food of the Norwegian peasantry.

The elk in summer abides in the shady recesses of the forest. Its food then consists of the bark and

tender twigs of young trees; it also devours large quantities of the wild berries which grow so abundantly in this country. It is said to eat the numerous fungi which are found in the Norwegian woods. In winter the food principally consists of the twigs of the birch, willow, and mountain-ash; it is very partial to the berries of the last-mentioned tree. Like the reindeer, it also feeds on lichens. The rutting season is in autumn, when there are fierce combats between the males for the possession of the females. The doe brings forth her young, one or two at a birth, towards the end of the following May.

Mr. Lloyd, in his 'Scandinavian Adventures,' says that the elk fawns have been brought up by a cow. "At first the cow showed reluctance to the fawns, but after awhile her dislike was converted into a special affection, and she licked and caressed them with great fondness. The smallest of the fawns at once began to suck, and continues so to do until the present time. The larger one will not suck, but, nevertheless, closely follows her stepmother whenever she goes in a large enclosed pasture; and, in the meanwhile, it feeds on grass, and treats itself to leaves, especially those of the willow. Its evening repast consists of a bowl of meal, mixed with milk and water, of which it partakes with much pleasure. When dogs approach, whether it be in the field or within the narrow enclosure or shed where they have their night quarters, the cow always defends them with courage and success; and she also evinces her displeasure when children or mischievous boys approach too near to her adopted offspring."

Other authors besides Cæsar have confounded the elk with the reindeer. This is strange, for the two

species entirely differ in appearance. According to Pontoppidan, the elk in Norway is sometimes attacked by epileptic fits, when the animal cures itself by opening a vein behind its ear with its hind foot.

In ancient times, the elk was captured in this country by means of pitfalls. These were made large and deep, and were generally near the water, so that when the animal went to drink it tumbled in headlong, and was taken. Many of these ancient pitfalls may still be seen in Norway, and are scrupulously avoided by the superstitious peasants. Nowadays the elk is pursued by the hunter, who is armed with a rifle. He holds a small dog of sharp scent in a leash, which goes on before him. The keenness of scent of the elk is remarkable, while its sense of hearing is so acute that the breaking of a twig or the noise caused by the displacing of a small stone will put it to flight. When alarmed, it makes off at a swinging trot, and when hard pressed it gallops. It never stops to look back, but presses onwards, shrugging its shoulders, throwing back its large ears, and holding its head rather depressed. As it weighs as much as 1000 pounds, the momentum given to it in its flight is very great.

The elk is a ruminating animal, and only feeds by day. It eats slowly, and when it has satisfied its hunger, it lies down in some sheltered spot, generally in the shade of some deciduous tree, and not far from the water. Here it takes its ease, and ruminates like the cow. Having a large and short neck, it ruminates much more easily than the reindeer, whose neck is long and narrow.

Medicinal virtues are ascribed to various parts of the elk by the Norwegian peasantry. Thus it is be-

lieved that a ring made from its hoof, and worn on the finger, is a sovereign remedy for colic and cramp; a draught of the blood, swallowed warm, is supposed to make the person that drinks it strong and courageous. An electuary made of the horns pulverized is considered a certain cure for epilepsy.

The elk is turned to various uses in Norway. The handles of knives, and other articles, are manufactured from its horns. The hide is tanned and makes excellent leather. The under part, on the belly, makes soft gloves. The hoofs are boiled down into glue.

It is sometimes necessary for the hunter to be on his guard when pursuing this animal, for, when hard pressed, it will turn back, and attack the hunter with great determination and courage. The Norwegian elk is an excellent swimmer, but drinks little during the winter months. In the rutting season, and in hot weather, it is of a thirsty nature.

In winter, the Norwegian hunters pursue the elk on *skie*, or snow-skates. These *skie* are made of wood, are not wider than the feet, and are 10 feet in length. They are turned up at the end, and are pointed. They are fastened round the feet by short straps. The hunter is able to proceed over the snow at a great speed when he has *skie* on his feet. The *skie-löber*, or runner, propels and guides himself by a pole, which he holds in his hand. He goes downhill at a breakneck pace. As a proof of the rapidity of travelling with *skie* when they are used by a practised skater, I may relate the following, which is a true story:—During a severe winter in Norway, when the snow was unusually deep, intelligence reached Christiania that a *klokker*, or clerk, was required in a parish about twenty miles dis-

Vincent Brooks, Day & Son, Lith.

RACING ON SKIE IN NORWAY.

tant. Now, the parish clerk is an official of some importance in rural districts in this country, and as the *klokker-penge,* or fees, are considerable, when a vacancy occurs, there are many aspirants for the coveted office. On the occasion in question, two candidates were in the field, or to be precise, we should say in the snow, and both started at the same time from Christiania for the *præste-gaard,* or house of the clergyman who was to make the appointment. One started on horseback, the other on *skie.* Bets ran high in Christiania on the occasion, although the candidate on horseback was the favourite, as it was naturally supposed he would arrive the first at the winning-post, and gain the prize. There is, however, nothing like leather, or, in this case, like wood; and, as the horseman had to travel by a circuitous route, while the *skie-löber* cut over the hills, and was, moreover, a practised skater, the latter arrived first at his destination, and obtained the situation.

CHAPTER IV.

The Reindeer in Norway.—Where Found.—Hunting the Reindeer.—Good Sport.—Reindeer Dogs.—A Norwegian Sæter.—Reindeer Venison.—Singular Accident to a Herd of Reindeer.—The Estimated Number of Reindeer in Norway.—The Rutting Season.—The Horns.—Origin of the Reindeer in Norway.—Habits of the Reindeer.—Its Food.—The Fawns.—Modes of Capturing the Reindeer in Norway.—The Red Deer and Chamois in Norway.

The reindeer (*Cervus tarandus*) is the most interesting and useful wild animal in Norway. It is found on the higher fjelds of the Dovre-fjeld, in the Jotun-fjeld, Fille-fjeld, Hardanger-fjeld, and Suletind-fjeld; it is also common in the Sætersdal-fjeld, in the Christiansand Stift. The best resort for the English sportsman when reindeer-hunting in Norway, is one or two stations in Gudbrandsdal and Österdal. Good general sport with the gun is also to be had in the same localities.

In the middle of August, 1863, two Norwegian sportsmen visited the Dovre-fjeld in search of reindeer, and killed four animals in a single day. They were out ten days altogether, and killed ten deer. That was unusually good sport, such as is not often to be had, and was obtained about three miles in the

interior of the mountains, between Gudbrandsdal and Österdal. Another party, at the same time, and in the same neighbourhood, killed six deer in seven days. English sportsmen who visit this country for the sake of reindeer shooting, would think themselves fortunate indeed, if they could meet with such luck as this, but it is very seldom to be met with.

An English friend who visited the Dovre-fjeld in 1862, remained there for three months, and shot three reindeer, while another Englishman in the same locality, and during the same period, only shot one. It must not be supposed, however, that the sport is tame, far otherwise. The exhilarating effects of the pure mountain air, the excitement of pursuing the reindeer, the healthy exercise, with the novelty of the rough living, and hungry appetites induced by it, render reindeer-hunting one of the most exciting and enjoyable of field sports. All that the English sportsman requires is warm clothing, English ammunition, an English rifle, a waterproof overcoat and sheet, and a few creature comforts in the shape of potted meats, cordials, etc. Health and strength are required, of course, to endure the fatigues of an expedition to the fjelds. A good Norwegian guide is an indispensable assistant; and a small dog, purposely trained to hunt the reindeer, should be purchased, if possible; although, as a general rule, the peasants ask an exorbitant price for their little animals, an especial drawback when it is considered that their small specimens of the canine race would be yclept curs in England. As to the Norwegian language, a very trifling acquaintance with it will suffice, and there is no teacher like necessity. When hunger is gnawing at a man's vitals,

his tongue soon finds an expressive way of proclaiming his wants; while he is soon understood when he has money in his purse.

The principal refuge for the sportsman in the Norwegian mountains is the *sæter*, which answers, in many respects, to the Swiss *chalet*. Here, in summer, the cattle are driven to find pasture; and here, at night, the tired hunter finds sleeping accommodation, such as it is, with rye-bread and flat cakes, called in Norway *fläd-brod*, cheese, cream, and butter. Fresh eggs may generally be had at the *sæters*, although poultry is kept only at the farms in the lowlands. Tea, coffee, and sugar, are not to be had at any price. It is to be hoped, however, that the sportsman will have been fortunate enough, during his day's sport, to have provided himself with a fresh steak of reindeer venison, a dish not to be despised. The *sæters* are inhabited by healthy and robust, but plain-looking peasant girls, who are extremely attentive to the wants of the traveller, and are very modest and well-behaved.

The Norwegian *bönder*, who live in mountainous districts, go to the fjelds in summer to hunt the reindeer, on which their families almost entirely subsist during the long winter. They erect stone hovels on the mountains, and when a reindeer is killed, it is flayed, divided into quarters, then wrapped up in the skin, and placed *en cachette*, to protect it from the ravages of wolves, gluttons, and foxes. The hunter comes the next morning with a pony, and removes the deer to his home, where it is salted down for domestic use during the winter. The man then returns to the fjelds, and continues his hunting until he has procured suf-

ficient venison for his family's use throughout the winter, when he hunts no more that year.

A few years ago, a singular accident happened on the Dovre-fjeld. Some hunters were one day pursuing a herd of more than a hundred reindeer, when the animals approaching too near a precipice, the snow gave way beneath their feet, and the whole herd fell over and were killed. The peasants in the neighbourhood had a rich windfall of reindeer venison that season, and were several days in removing the carcases of the reindeer to their cottages.

The reindeer is called in Norway *reens-dyr*. In ancient times it was called *hrein-dyr*. In the beginning of the eighteenth century, herds of three or four hundred animals were seen at one time in the fjelds, and now they are much more numerous. Nilsson, the Swedish naturalist, informs us that reindeer are sometimes seen in extraordinary numbers. He has observed them in the Swedish fjälls, for the breadth of three miles and a half, as thickly collected together as sheep in a flock. "A number of hinds had recently calved, and the fawns followed their dams. The herd extended so far, that the eye could not embrace them all at once." He compares the sight to the herds of antelopes in the deserts of Africa, or to the extensive herds of bisons to be seen on the prairies of America.

There are, perhaps, at a rough guess, thirty or forty thousand wild reindeer in Norway; and it is by no means improbable that there are a great many more, for the number killed annually by the hunters is comparatively small.

The rutting season takes place in the beginning of September for the old males, and rather later for the

younger ones. The horns are shed once a year, and are covered with a dark ash-blue nap, of the consistency of plush. Each animal has two long upright horns, with numerous branches, as well as a pair of frontal horns which project over the forehead, and are palmated, the right-hand one being longer than the other. Nature appears to have bestowed the frontal horns on the reindeer to assist it in scraping away the snow from the lichens, which are its principal food in winter. Speaking of the horns of this animal, Pontoppidan says:—"When the new horns are beginning to grow, then it is that they appear to be covered with a kind of skin; and until they come to the length of a finger, they are so soft that they may be cut with a knife like a sausage, and are eaten raw." The bishop adds that he obtained his information from the hunters themselves, who often, when out on the fjelds, and suffering from hunger, found these budding horns of the reindeer both meat and drink to them. The beauty and size of the reindeer's horns depend very much on the facility with which the animal obtains its food. As a proof of this, I mention the following interesting circumstance:—Some Norwegian hunters on the fjelds killed a small reindeer that was without horns, and so emaciated that it was literally nothing but a "bag of bones." On looking for the cause of this singular freak of nature, they found that the animal had had part of its jaw shot away. The wound had healed, but the poor creature was unable to obtain proper nourishment; it could hardly swallow, and, in consequence, the horns had been unable to grow. The horns are so intimately connected with the organs of reproduction, that if they are cut before the rutting

season, they grow no more that year, and the deer is rendered unfit for breeding purposes the following season.

The wild reindeer is a handsome animal, but is by no means so graceful as the red deer, on account of the formation of its neck, which obliges it to carry its head low. In summer, its colour is brownish-gray, in winter it is of a much lighter gray. It is dappled gray when it is shedding its coat. The hair under the neck hangs down in a long tuft. The weight of the animal varies from 200 to 280 pounds. The legs are short and thick, and the hoofs are large and broad, and well adapted for the rapid motion of the animal over the snow. As it moves from place to place, the hoofs make a snapping noise, which is occasioned, says Mr. Lloyd, "by the contraction of the hoof when the foot is raised from the ground, and the consequent striking of the inner parts of the hoof against each other." Other writers assert that the noise is caused by the incessant crackling of the knee-joints of the animal, as if produced by a succession of electric shocks.

The wild reindeer is strictly preserved in Norway from April 1st to August 1st. As to the origin of the reindeer in Scandinavia, Nilsson is of opinion that the animals once to be found in Scania, a province of Southern Sweden, came from the south, immediately after the boulder-formation, and whilst Sweden was still united to Germany; while, on the contrary, the reindeer, which are now found in Northern Sweden and in Norway, arrived at a much later period, and after the land stretching between the Gulf of Bothnia and the White Sea had risen from the deep. The

Swedish naturalist Nilsson bases his conclusion from the fact that fossil remains of reindeer have been found in abundance in the marshy grounds in some parts of Scania; while in the whole expanse of country between Scania and Lapland, no fossil remains of reindeer have been found.

There is a very fine specimen of the wild reindeer in the Zoological Museum at Christiania, which was obtained under rather interesting circumstances. The Kings of Norway are still crowned in the cathedral of Throndjem; and when the late King Oscar was returning to Christiania, accompanied by his Queen, after his coronation, due notice was, of course, sent to the different post-stations *en route*, to request the postmasters to be on the alert, and provide themselves with something better than the *fläd-brod* and *gammel-ost*, or old cheese, which are the staple articles of food at all Norwegian post-stations. Now, at one station on the royal journey, the postmaster was in a dilemma, for he had no proper edibles to place before his royal visitors. Fortunately, however, in this predicament, some sportsmen in the neighbourhood killed a noble reindeer, and loyally brought it as a gift to their king. The present was gladly accepted, the royal table was unexpectedly supplied with reindeer venison, and the skin of the animal, an unusually fine one, was forwarded to Christiania, when it was stuffed, and placed in the Zoological Museum there, where it may still be seen.

It is an old but trite saying, "First catch your hare, then cook it;" and before hunting the reindeer, the sportsman must learn something of its habits. The wild reindeer leave but little "trail" behind them on

the hard and rocky ground of the fjelds, so the hunter must make the most of such traces as he can find. It is useless to pursue the deer with the wind blowing towards the hunter, for they are keen of scent and quick of hearing. They always travel against the wind, so the best way is to stalk them on the flank. A pretty sure sign of reindeer being in the neighbourhood is when the hunter finds that the flowers of the *Ranunculus glacialis* have been recently cropped, for the reindeer are especially fond of them. It should also be mentioned, that when a herd is on the move, sentinels are thrown out in the rear, who never rejoin the main body until all suspicion of danger has ceased. The hunter must take care, therefore, not to advance until these sentinels are withdrawn; for if he is seen by them, the whole herd is off at a gallop, to be seen no more that day. In fact, reindeer-hunting requires a great deal of patience and perseverance to be crowned with success.

Like the domestic cat, the reindeer dilates and contracts the pupil of the eye, which cannot bear a strong light. It may be mentioned, however, that it contracts and dilates the pupil of the eye horizontally, while the cat, the owl, and some other creatures, do this vertically.

In summer the food of the reindeer consists of grasses and lichens, of the tender shoots of the birch, and of various Alpine plants, especially the *Ranunculus glacialis*, which grows on the highest fjelds, and close to the glaciers, and is called in Norway *rein-blomme*, or rein-flower. In winter it feeds on reindeer moss, *Cladonia rangiferina*, and other lichens, as well as on the tender twigs and bark of the birch. The animal

obtains the moss by scraping away the snow that covers it with its hoofs and frontal horns.

The doe brings forth her young in May, and has one or two fawns, and very seldom three. Nature is kind to these young creatures, and enables them to follow their dam a few days after they come into the world. Singularly enough, the buck would kill and devour the fawns if he could get at them, but the doe protects them from his unnatural attacks. One would reasonably suppose that the reindeer would prefer the low grounds in winter, where they would find protection from the cold winds and tempests; but such is not the case. In summer they remain in the lower mountain regions, where they are sheltered from the piercing rays of the hot Norwegian sun by high rocks; they also visit the low grounds at this season of the year to graze on the pastures. In winter they ascend the higher fjelds, because a more plentiful supply of reindeer moss is to be found there than anywhere else, and because the high winds blow away the snow, and leave bare places on which they can browse. In mountain-climbing they are as expert as the chamois, and can ascend a high fjeld at a gallop.

In ancient times the most common way of capturing reindeer was by pitfalls, which were generally made on the slopes of the fjelds, and especially in the passages leading through rocks to the mountain lakes; for the deer fell into the pits when they went to drink. They were also run down on *skie*. In the present day they are killed in summer by the rifle, and must be stalked. This is a laborious undertaking, for the ground is covered with large stones, which are easily displaced, and roll down with a noise which alarms the deer. In

Vincent Brooks, Day & Son, lith.

REINDEER IN THE DOVRE FJIELD

winter, when the snow is on the ground, the peasants still pursue the reindeer on *skie*, and kill many of them. This is not, however, easily managed, for the reindeer proceeds at a much more rapid rate over the snow than the elk; and, when the snow is deep, the animal keeps to the highest fjelds.

The red deer has never been common in Norway, and is now only to be found on Hitteröen, an island off the coast of Throndjem, and on Smölen, an island off the coast of Christiansund. The reason why they left the mainland for the islands was because they suffered so much on the former from the ravages of wolves.

Fossil remains of the red deer have been found on one or two of the larger islands off the west coast of Finmark.

An attempt has been made to introduce the chamois into Norway. A herd of eight chamois was purchased in Switzerland, and was set at liberty in the Gousta Fjeld, near Tindsöen, a lonely inland lake in Thelemarken. The locality was well chosen, but most of the animals have perished, and no doubt the attempt will be a failure.

CHAPTER V.

The Wolf in Norway.—When First Seen in this Country.—The Cubs.—Its Food.—Strange Food.—A Sick Wolf.—The Wolves on the Ice.—A Catastrophe.—Partiality of the Wolf for Pork.—An Adventure with Wolves.—The Bishop and the Wolves.—Medicinal Virtues of the Wolf.—Its Skin.—Modes of Capturing Wolves in Norway.—Boldness of the Wolf in Winter.

The wolf (*Canis lupus*) is common in all the mountainous districts of Norway, especially in the central parts. Nilsson was for a long time of opinion that the black wolf (*Canis lycaon*) was also found in Sweden and Norway; but this appears to have been a mistake, as it has been ascertained that only the common species frequents the Scandinavian peninsula. It would appear that, in former times, the ravages of this animal were confined to the eastern and north-eastern parts of the country. The unwelcome brute no doubt found its way into Sweden from Russia, where it remained for a long time on the frontier of Norway. We find from Pontoppidan that wolves were unknown in the Bergen Stift until 1718. Before that year the ravages of these hated and dreaded animals had not extended beyond the Fille Fjeld, a range of mountains at a considerable

distance from Bergen. About the year mentioned, a few wolves, more venturesome than their fellows, appeared in the Bergen Stift; and at the end of the last war between the Danes and Swedes, an army having to cross the Fille Fjeld during the winter, was followed by great numbers of wolves, attracted, no doubt, by the provisions of the soldiers, or even by the dead bodies of those who perished on the march through that desolate region. The wolf is called in Norway *ulv* and *graa-been,* or gray-leg.

The Norwegian wolf breeds once a year, in the beginning of May, and produces five or six young at a birth. The cubs resemble young foxes, except that the tip of the tail is never white. As they grow in size they assume the gray colour.

In winter the wolf feeds on almost anything he can get. He destroys thirty or forty sheep at a time, eating only certain dainty parts of one or two of them. He is an inveterate enemy of the elk and reindeer, and is detested by the Lapps for his destructive forays among their herds of tame reindeer. He pursues the elk with extraordinary patience and perseverance, until he comes within sight of his prey, when there ensues a chase of some hours' duration; but the quarry is sure, sooner or later, to succumb to its relentless pursuer. In the winter the wolf awaits the elk on the borders of some frozen lake, and then contrives to drive its victim on the ice. The unwieldy deer flounders along, staggering at every step, until it falls with a crash on the ice, when its enemy leaps at its throat, and sucks its life-blood.

It is said in Norway that when the wolf has fasted for a long time, and has become almost mad with

hunger, it will devour clay. Now, this kind of food cannot be digested, so it remains in the animal's stomach for some time, when at last nature interposes, and works off this unnatural article of diet; but the wolf suffers excruciating pain, and howls dismally during the operation.

Pontoppidan says that by Vandelv, in Sundmör, a farmer once saw a wolf that appeared to be very sick and exhausted; approaching the animal, he struck it on the head and killed it. Being of an inquiring turn of mind, the worthy agriculturist opened the dead wolf to see if he could discover the cause of its ailment; when, to his surprise, he found a solid lump of moss and birch-twigs in its stomach, which, being a species of food unfit for a beast of prey, had brought on colic and indigestion.

Sometimes the Norwegian wolf attacks and devours the dogs which are chained up to guard farms and outbuildings. About ten years ago, during an unusually severe winter, some wolves attacked and devoured in one night several dogs that were kept at the Botanical Gardens, Christiania.

Mr. Lloyd, in his interesting work on the 'Scandinavian Fauna,' says, "When the wolf is hungry, everything is game that comes to his net. In the Gulf of Bothnia he often preys on seals. When that sea is frozen over, or partially so, as is generally the case soon after the turn of the year, he roams its icy surface in search of the young of the gray seal, which at that season breed amongst the hummocks in great numbers; and, finding this an easy way of procuring sustenance, he remains on the ice until it breaks up in the spring. It not unfrequently happens, however,

that, during storms, large fields of ice, on which numbers of wolves are congregated, break loose from the shore, or the land ice, in which case, as soon as the beasts perceive their danger, but see no possibility of escape, they rush to and fro, keeping up the while a most woful howling, heard frequently at a great distance, until they are swallowed up by the waves."

The wolf has a peculiar fondness for pork, and often makes a wholesale attack on the farmers' pigs. This weakness of the animal for the unclean flesh often causes him to fall a victim to his depraved tastes. A young pig is conveyed on a winter night in a sledge over the snow, as a bait for wolves. Three men generally go together on this peculiar kind of sporting adventure. The pig is carried in a sack until the sledge arrives at a likely locality, when it is taken out, and one of the men begins to pinch its tail, which of course causes poor piggy to squeak. Should there happen to be wolves in the neighbourhood, the cry of the pig soon attracts them to the spot, and they pursue the sledge, remaining for some time at a respectful distance, licking their chaps at their anticipated feast. This agreeable thought is irresistible, and they approach nearer and nearer, until they come within range of a rifle, when one of them pays the penalty of his fondness for pork. This sport is attended with some danger, for should a pack of wolves attack the sledge, it is by no means improbable that horse, men, and pig may be devoured.

Some years ago, a Norwegian Amtmand, a friend of the author, was travelling in a carriole between Kongsvold and Jerkin, two mountain-stations established in 1120 by King Eyestein, for the accommodation and

safety of travellers over the Dovre-fjeld. Our friend was musing on affairs of state, or was congratulating himself, perhaps, on the certainty of arriving soon at comfortable quarters for the night. His mind full of these pleasant thoughts, what was his astonishment and dismay to see straight before him half-a-dozen wolves! The traveller was unarmed, and his horse was tired. Luckily, Jerkin was not far distant, and our friend passed the wolves at a gallop, but they followed him up to the door of the station, and then sneaked off, disgusted, no doubt, at the escape of their anticipated prey.

Tofte, another station on the Dovre-fjeld, is kept by a lineal descendant of Harald Haarfager, one of the ancient kings of Norway. The family is so proud of its origin, that its members have intermarried for several generations; the consequence of this constant "breeding-in" is, that the only son of the present head of the family is a dwarf. When the present King of Norway stopped at Tofte on his way to Throndjem to be crowned, the station-master informed the attendants on the King that they did not require to unpack the plate-chest, for he had silver spoons and forks enough to accommodate any number of royal guests.

Pontoppidan relates the following amusing story of the incredulity of a Norwegian bishop:—"Hunger sharp as a sword makes the wolf in winter unusually bold; so that he will often, and especially on the ice, attack and take away a horse from a sledge. On account of this fierceness of the wolf, prudent travellers in winter always go armed. Bishop Munck would not believe, most probably because he resided at Chris-

tiania, that there was any necessity for such precautions, and having heard that a clergyman of his diocese named Kolbjörn was in the habit of carrying a loaded gun in his sledge for the purpose of protecting himself from the attacks of wolves, the bishop rebuked him severely for doing so; the practice, in fact, did not coincide with the bishop's notion of clerical consistency, and he requested the pastor to dispense with firearms when travelling for the future. A request coming from such a quarter was tantamount to a command, so the clergyman made up his mind to obey. Now it happened that during the following winter the bishop had occasion to visit Mr. Kolbjörn at his parsonage; there he dined, and left again rather late in the evening. The clergyman drove the bishop in his own sledge, and when they arrived at a certain sheet of water which was frozen over, Mr. Kolbjörn remarked, 'This is a very likely spot for wolves; and, indeed, I heard yesterday that several had been seen about here.'

"'Wolves!' exclaimed the bishop. 'Then surely, Herr Kolbjörn, you have brought your gun with you?'

"'Oh, no! Herr Biskop,' replied the clergyman; 'you convinced me of the impropriety of such a bad habit, and I left my gun at home.'

"As the clergyman was speaking, several wolves appeared in the distance, in pursuit of the sledge. The parson knew, however, that he could trust to his horse's speed, which soon left the wolves in the rear. The event made a great impression on the bishop's mind, and he never travelled in winter again without having a gun in his sledge."

The flesh of the wolf is not palatable, but I have been informed that some of the Norwegian peasants are glad enough to eat it in severe winters, when they can get nothing else.

It is very probable that the Norwegian wolf occasionally pairs with the dog. I have seen dogs in this country that exhibited undoubted signs of their wolfish origin. One particular dog, that often passed me in the streets of Christiania, closely resembled a wolf in appearance.

Medicinal virtues are ascribed to the wolf in Norway. The peasants believe that powdered wolf's flesh excites an appetite, and that an ointment made from its fat, and applied externally on the chest, is a specific in pulmonary complaints.

The skin of the wolf is used in this country for fur coats, rugs, and thick warm aprons for sledges, to protect the traveller's legs from the severe cold. A large wolf-skin coat costs in Norway from 20 to 100 sp. dollars. In ancient times, heroes were permitted to wear a wolf-skin as a mark of distinction; and an old writer states that, once upon a time, Norse warriors wore wolf-skins over their coats of mail, to terrify their enemies.

The wolf is commonly captured in Norway by the ordinary steel trap; he is also taken in pitfalls called *ulve grav*, which are made very deep for the purpose, and are guarded round the sides by pointed stakes, by broken scythes, and sharp pieces of iron, so that the captive may not leap out again and escape. It is also captured in the *ulve-gaard*, or wolf-house or yard, a fenced enclosure into which the animal is enticed, and when it is inside, a person stationed to watch closes

the entrance. The fence is made so high that the wolf cannot leap over it, although it constantly endeavours to jump over, always to fall back baffled into the enclosure. Some one then comes and puts it out of its misery by shooting it. The wolf is but seldom regularly hunted in Norway, for the dogs of the country are not strong enough to tackle it. A great number are, however, captured in traps, or killed by stratagem, such as that of the squeaking porker.

I may observe, in conclusion, that the Norwegian wolf is not dangerous in summer; for at that time of the year it avoids human beings, and hides itself when it can. In severe winters, when rendered almost mad by hunger, two or three wolves together will attack a solitary traveller, and devour him and his horse. This creature is bold and daring in winter, and then approaches the towns. I have myself seen a wolf composedly trotting across the ice on the Christiania-fjord, and I was near enough to the brute to see him show his teeth at me. Some time since a lady was driving a sledge in the neighbourhood of Christiania, when a wolf leaped out of a hedge, and carried off an unfortunate lap-dog that was lying asleep by its mistress's side.

CHAPTER VI.

The Fox in Norway.—Two Kinds.—Its Norwegian Name.—Fox Skins.—A Sick Fox.—The Black Fox.—A Norwegian Housekeeper in Peril.—The White Fox.—Its Habits.—Its Food.—The Foxes and the Birds' Eggs.—The Fox as a Fisherman.—The Fox and the Crows.—The Fox and the Badger.—The Fox and the Otter.—The Fox and the Fleas.—Tricks of the Fox.—The Fox and the Hedgehog.—The Agility of the Fox.—Medicinal Virtues.

The fox (*Canis vulpes*) is common in all parts of Norway. Two species are found in this country, viz. the common red fox, and the Arctic or white fox. The black fox is occasionally to be met with, but is now acknowledged to be simply a variety of the common fox. The crossed fox, which is larger and stronger, and is said to be more courageous than the common fox, appears, also, to be only a variety. At any rate, some Norwegian naturalists say so, while others assert that it is a distinct species. The fox is called in Norway *rœve*, and in rural districts it receives the familiar appellation of Michel. Although it is not pursued for sport in this country, but is simply regarded as vermin, the peasants have no particular dislike for it, rather the reverse, and think Reynard a cunning sort of fellow, deserving of some respect.

So plentiful were foxes in Norway in the eighteenth century, that no less than 4000 skins were annually exported from Bergen to foreign countries. That town, then in reality the capital of Norway, was, no doubt, the centre to which the skins were sent from all parts of the country. The Russians purchase a great number of Norwegian fox-skins every year.

The colour of the fox in Norway is a light rufous-brown, tinted with yellow, with white on the forehead, shoulders, and lower parts of the back; cheeks and throat, white; tail, rufous-yellow, tinged with black, tip white; ears tipped with black; paws, black. The female produces from three to five cubs in April. I have seen a common bitch fox in Norway, which had just recovered from a *flode sygdom*, or flowing sickness. It was emaciated, the fur was short and patchy, the tail was almost bare, and of a dark ash-blue colour.

The black fox is held in high estimation in Norway, and its skin is extremely valuable. Its hair is much finer, softer, and longer, than in the common fox. Its colour is black, tinged in parts with silvery white. A good skin of a black fox is worth from 50 to 100 sp. dollars.

A friend of mine at Christiania had purchased a litter of five young foxes, which he intended to send to England. They were placed in a large box, but during the night they managed to escape. After playing about the yard for a time, they got into the corridor which runs round all Norwegian houses. The *jom-fru*, or housekeeper, hearing the noise made by the young foxes scampering up and down, unfastened her chamber-door and looked out; when the playful young creatures ran in and began to bite and scratch

her legs. The *jom-fru* screamed "Murder," when her tormentors, frightened at the unusual sound of a female's voice in distress, made off. They were captured a few days afterwards in a timber-yard in the town.

The Arctic or white fox (*Vulpes lagopus*) has its home in Norwegian Lapland. It is also to be met with in the Dovre-fjeld, but seldom visits the southern parts of this country. It differs, in many respects, from the common fox. It is more cleanly in its habits, nor does any offensive smell proceed from the anal glands. It has a broader and sharper head than the common fox, while the ears are not so pointed, and are yellow on the inside of them. The eyes are situated low down in the head, which gives it a singularly truculent look. It is also considerably smaller in size than the common red fox. Its body colour is white, which is tinged in summer with very pale blue. In winter it is white or dirty white all over the body. The hair is long and fine, but the skin is of less value than that of the common fox, as the hair is liable to come off. This animal is gregarious, and lives in colonies; it also burrows in the sand on the seacoast. It is said to be an excellent swimmer, and on the west coast of Finmark, it occasionally leaves the mainland, and swims to the adjacent islands. Although it does not possess the cunning of the common fox, it displays considerable sagacity at times, for it hides its food in the snow, and always does so when it thinks no person is observing it.

Writing of the white fox, Captain Lyon says, "I frequently observed my dog-fox, when no snow was attainable, gather his chain into his mouth, and in

that manner, carefully coil it so as to hide his meat. On moving away, satisfied with his operation, he, of course, had drawn it after him again; and sometimes, with great patience, repeated his labours five or six times, until, in a passion, he has been constrained to eat his food without its having been rendered luscious by previous concealment. Snow is the substitute for water to these creatures, and on a large lump being given to them, they break it in pieces with their feet, and roll on it with great delight. When the snow was slightly scattered on the decks, they did not pick it up, as dogs are accustomed to do, but by repeatedly pressing with their nose, collected small lumps at its extremity, and then drew them into the mouth with the assistance of the tongue."

The sagacity of the same white fox is thus described:—"He was small and not perfectly white; but his tameness was so remarkable that I could not afford to kill him, but confined him on deck in a small hutch with a scope of chain. During the first day, finding himself much tormented by being drawn out repeatedly by his chain, he at length, whenever he retreated to his hut, took this carefully up in his mouth, and drew it so completely after him, that no one who valued his fingers would endeavour to take hold of the end attached to the staple."

The Arctic fox feeds on sea-birds and their eggs, which it finds on the coast,—on the bodies of dead fishes, and on marine insects. In Norwegian Lapland it preys on the lemming, of which it is especially fond; and when there is a migration of the lemmings from the northern fjelds to the south of Norway, many Arctic foxes follow in pursuit of them.

This animal is called in Norway the *hvid-ræve*, or white fox, and *fjeld-ræve*, or mountain fox.

I have said that this animal is partial to the eggs of birds, and I heard the following amusing story of its sagacity in Norway:—On the coast of Finmark, or Norwegian Lapland, innumerable sea-birds build their nests in the holes and crevices of the rocks, or even lay their eggs on the bare rocks themselves. These rocks are high and perpendicular; but the more inaccessible they are, so much the greater number of nests are to be found on them. Now, the Arctic foxes are well aware of this fact, and wishing to get at the nests, they adopt the following ingenious expedient. A number of the animals assemble on the summit of the rocks, and having held a wrestling match, to try their relative strength, the strongest fox throws himself over the cliff, clinging with his paws to the top of the rocky eminence. The next fox then creeps over the first one's back, and holds on by its tail, and so on in succession, until a long string of foxes is formed, each holding on by its neighbour's tail. The last fox down bags the eggs. It is not said how the foxes get back again to *terra firma;* should the first fox let go his hold, the catastrophe that would ensue may be imagined.

When the winter is very severe in Lapland, the white foxes come southwards; but they always follow the coast line, except where they break off occasionally to visit the mountains. When pressed by hunger in the fjelds, they subsist on roots, which they dig out of the ground by scraping with their paws and snout.

Ancient writers, such as Pontoppidan and Olaus Magnus, relate some marvellous stories of the fox.

According to Pontoppidan, when the fox is hungry, it sets out on a piscatorial excursion; arrived at the seaside, it insinuates its bushy tail in the water near large stones, when crabs, small lobsters, and oysters seize the hairy appendage, and are drawn out by Reynard, who thus makes a hearty meal. But the following stratagem is more singular. Some fishermen on the coast were astonished one day by seeing a fox carefully laying the heads of fishes in a row near one of their cottages. They could not imagine at first what Michel was about; but on closely watching its motions, the mystery was explained. The fox concealed itself behind a large stone, and pounced on the first crow that came, attracted by the bait.

The fox gets possession of the badger's den in this manner:—When the badger is absent, Reynard visits its den, where he conducts himself in a very disreputable manner, dirts about, and leaves such a disagreeable smell behind him, that when poor Broc returns home and discovers the state of affairs, he heaves a profound sigh, and vacates the premises in despair. The fox, who has concealed himself within view, no sooner observes the departure of the badger, than he enters in and takes possession. The Norwegian fox outwits the otter in an ingenious manner. Having discovered the favourite fishing ground of the otter, the fox hides himself near, generally behind a stone. The otter comes out of the water fish in mouth, which it lays on the ground, preparatory to a feast. The fox at this critical moment makes a sudden spring from his hiding place, the otter starts back in blank astonishment, and Reynard is soon at a safe distance with his prize.

The fox is said in Norway to be partial to honey, and when he comes to a beehive he makes a hole in it, through which he insinuates his tail, the enraged insects swarm round it, when the fox coolly walks off, switches his tail against a tree, or immerses it in water, and when he has thus got rid of the bees, he returns to the hive and devours the honey.

According to Pontoppidan, the fox gets rid of fleas in the following manner:—He takes a small bunch of straw, or some of his own hair, which he holds in his mouth, and then gets quietly into the water. His restless little enemies are immediately on the alert, and, fearing a watery grave, they hasten to take refuge in the straw or hair which is floating on the surface of the water. As soon as the fox perceives the state of things, he opens his mouth, and abandons the vermin to their hapless fate.

Pontoppidan also relates the following amusing stratagem of a fox:—"When an old bitch-fox is pursued by the dogs, she is at her wit's end, and is even more fertile than the male in expedients for throwing off her pursuers. One ingenious device is to deluge her tail with her own water, and when the dogs approach near enough, she whisks her tail in their faces, when they are glad to beat a hasty retreat, their eyes smarting with the pain caused by the penetrating fluid!"

Olaus Magnus has also some curious stories to tell of the fox. When Michel is hungry, and unable to find anything to eat, he stretches himself out at full length, shuts his eyes, hangs out his tongue, and pretends to be dead. The crows then, thinking they have fallen in with a rich prize, approach the supposed dead fox, in order to feed on its body. When they are near

enough, Reynard is himself again, and pounces on and captures one or more of his deluded victims. Sometimes, when caught in a steel trap, the fox simulates death; the *bonde* then approaches, and seeing the fox, as he supposes, dead, he is careless in opening the trap. As soon as he finds the teeth of the trap loosened, Reynard is alive again, and quickly makes off, to the astonishment and chagrin of the worthy agriculturist, who did not expect such a resurrection.

The fox has an invincible predilection for the flesh of the hedgehog, and circumvents the poor creature in this way. Of course he finds the hedgehog rolled up in a ball, when he turns it on its back, and makes water into its eyes; the pungent fluid causes the poor hedgehog to uncoil itself with pain, when it is soon killed and devoured.

Such are some of the tricks of the fox, according to Pontoppidan and Olaus Magnus, whose statements, however, must be received *cum grano salis*. Bishop Pontoppidan was a learned man for the times in which he lived, but he was singularly credulous, and, among other things, fervently believed in the existence of the sea serpent, called in Norway *kraken*, and gave a minute description of one he had seen!

The following amusing story of the agility and cunning of the fox is narrated by Mr. Lloyd:—"A certain jägare, who was one morning keeping watch in the forest, saw a fox cautiously making his approach towards the stump of an old tree. When sufficiently near, he took a high and determined jump on to the top of it, and, after looking round a while, hopped to the ground again. After Reynard had repeated this knightly exercise several times, he went his way, but

presently returned to the spot bearing a pretty large and heavy piece of dry oak in his mouth, and thus burdened, and as it would seem for the purpose of testing his vaulting powers, he renewed his leaps on to the stump. After a time, however, and when he found that, weighted as he was, he could make the ascent with facility, he desisted from further efforts, dropped the piece of wood from his mouth, and coiling himself upon the top of the stump remained motionless as if dead.

"At the approach of evening an old sow and her progeny, five or six in number, issued from a neighbouring thicket, and, pursuing their usual track, passed near to the stump in question. Two of her sucklings followed somewhat behind the rest, and just as they neared his ambush Michel, with the rapidity of thought, darted down from his perch upon one of them, and in the twinkling of an eye bore it in triumph on to the fastness he had so providently prepared beforehand.

"Confounded at the shrieks of her offspring, the old sow returned in fury to the spot, and until late in the night made repeated desperate attempts to storm the murderer's stronghold; but the fox took the matter very coolly, and devoured the pig under the very nose of its mother."

The Norwegian peasants consider that the fat of the fox is an excellent lubricant for those parts of the body that are affected by rheumatism. An ointment made from the fat of the fox is also supposed to be a certain relief for colic, if rubbed on the pit of the stomach.

The Norwegian *bonde* has a profound belief in the French saying, "*Le loup nuit plus au paysan, le renard*

nuit plus au gentilhomme." On this account the wolf is pursued with relentless detestation, while the fox is but little molested. A few foxes are caught in steel traps, a few are killed by sportsmen, and a few are captured alive in the pitfalls made for bears, wolves, and lynxes.

CHAPTER VII.

The Norwegian Hare.—Where found.—Its Description.—Opinion of Nilsson.—Habits of the Hare in Norway.—Opinion of Linnæus.—Partiality of the Hare for Mice in Norway.—Hare's Blood as a Cosmetic.—The Badger in Norway.—Where Found.—The Young.—Badger Hams in Norway.—Singular Habit of the Badger.—The Marten in Norway.—Kept in Confinement.—The Squirrel in Norway.

THE hare (*Lepus variabilis*) is common in all parts of Norway, and is even found in Magerö, close to the North Cape. It differs in size, colour, and flavour from the common hare (*Lepus timidus*) which is found in Great Britain.

The Norwegian hare changes its colour twice a year, hence its designation, *variabilis*. In April it begins to assume its spring colour, called in Norway *vaar-dragt;* it gradually changes, until in summer it is gray-brown on the upper parts, and pale gray underneath its body. In September it appears in its autumnal dress, *höst-dragt,* when it is white all over, except the tips of the ears, which are always black.

The Norwegian hare is smaller in size than the common species, while its flesh is white and much less savoury; its price in the Christiania market is about that of a rabbit in England.

Nilsson, the Swedish naturalist, is of opinion that two species of hare are found in Scandinavia, one of which he calls the *syd-hare,* or southern hare, the other the *nord* or *fjall-hare,* that is, northern or mountain hare. Most probably only one species is to be found in Sweden and Norway, and the difference in appearance is owing to climate and the changes of seasons. I have handled no less than a dozen hares in the Christiania market at the same time, no two of which were exactly similar in colour. Attempts have been made to introduce the common brown hare into Sweden, but hitherto without success.

The hare feeds by night, and its food consists of various kinds of herbs, especially parsley, for which it has a great liking; it also eats roots, the tender leaves of plants, grasses, and grain. Its habits are well described in the following lines of the poet:—

"The timid hare,
Scared from the corn, and now to some lone seat
Retired: the rushy fen, the rugged furze
Stretched o'er the stony heath, the stubble chapt,
The thistly lawn, the thick entangled broom
Of the same friendly hue, the withered fern,
The fallow ground laid open to the sun
Concoctive, and the nodding, sandy bank
Hung o'er the mazes of the mountain brook."

The poor hare has many enemies in Norway, and falls a victim to wild animals, as well as to birds of prey, especially eagles and large owls.

As to whether the hare is a ruminating animal or not, I do not venture to express an opinion. Linnæus asserts that it is, but in a manner unlike other ruminating animals, which have a stomach of four cavities,

whilst the hare has a stomach of two, macerating the food in one, and digesting it in the other.

Pontoppidan mentions a singular taste, if true, of the hare in Norway. "In Norway," he says, "rabbits are only found in a few places, but hares are found in great numbers. Their skins, brown and gray in summer, become white in winter. They kill and eat mice like cats. They are also smaller than those of Denmark."

The rabbit in a wild state is now almost unknown in Norway. I never saw one myself in the country, nor have I ever met with a Norwegian who had.

The hare is commonly captured in Norway by wire snares. The peasants bring cartloads of them to market during the season. It is preserved by law from June 1st to August 15th.

The Norwegian peasants consider the blood of the hare to be an excellent cosmetic for removing scorbutic eruptions from the skin, as well as freckles from the face. It is also said that linen rags steeped in hare's blood and then dried are a cure for erysipelas, although they must not be applied to the affected part, but simply near to it.

The Badger.

The badger (*Meles vulgaris*) is common in the southern and central parts of Norway; it does not visit the far north. It frequents the dense woods and forests with which this country abounds, and remains almost entirely in its hole during the severe Norwegian winter, only going out when pressed by hunger. It is popularly believed in Norway that during its hibernation it lives like the bear by sucking its paws. In Scotland and the north of England the badger still retains its

old Anglo-Saxon name of *broc*, and it is an interesting fact that it still preserves in Norway and Denmark the name of *brok*.

In Norway the female brings forth from three to five young ones in April. She is a good mother, but the male is an indifferent father and does not trouble himself with domestic affairs. When her time is near, the female comes out of her hole, and collects a bundle of dry grass, which she drags to her den, and with which she makes a comfortable nest. She remains with her young until they are old enough to shift for themselves, while she only ventures forth at night to bring back birds' eggs, lizards, young rabbits, and honey, which she complacently lays before her offspring, who come to the mouth of the hole to feed.

The Norwegian peasants esteem the flesh of the badger, and call it delicious; they salt and smoke the hams, and eat them in a raw state.

I have described how the cunning fox drives the badger from his den, to obtain possession of it himself. When this happens, the badger does not wander about in idleness, but removes to no great distance, sets busily to work, and, with his short legs and powerful claws, soon scoops out another hole, to be again dislodged by some other fox.

This animal is now much scarcer in Norway than it was in former times. Its skin, being thick and impervious to wet, is employed in this country for the covering of trunks; its hair supplies the painter with brushes.

Pontoppidan says that when the badger bites a human being, it does not let go its hold until its teeth meet, and its bite is considered almost incurable. The

same writer states that in winter it inserts its snout in the pouch, *membranum genitale*, under its tail, and lives without nourishment. The Russians consider the skin of the badger to be valueless, but they think its grease is delicious. There is no accounting for taste in such things.

The pine marten (*Mustela martes*) is pretty common in all parts of Norway. It is found in Norwegian Lapland, and the Lapps ornament their dresses and caps with pieces of the fur. It is rather smaller in size than the common marten, and its skin is more valuable. Its throat is yellow, while that of the common species is white.

In Norway the marten is generally to be found in the shady recesses of the forest, where it preys on rats, mice, moles, rabbits, birds, and their eggs. Sometimes it eats vegetables and grain. It makes its nest in hollow trees, or in the crevices of rocks, and brings forth from three to five young in the beginning of May. Its Norse name is *maar*.

Pontoppidan asserts that there are two species of marten in Norway, viz. the *espe-maar*, or common kind, and the *birke-maar*, or birch marten, which is smaller, darker, and more valuable than the first mentioned. "It keeps itself to hollow trees, and lives on wood-mice or birds, and in pursuit of the latter it climbs trees, and leaps from one branch to another."

The marten has been kept in confinement, and has, to a certain extent, been tamed, but it could hardly be called a docile pet, although it was reared from the nest. It did not take kindly to the people of the house, and when it was unchained, it not only attacked and killed every cat in the neighbourhood, but it played

sad havoc with the poultry. Its chain was fastened round the middle of its body, but it would often get loose, and then would absent itself for several hours; returned home, it would exhibit no pleasure at the sight of the people of the house, although it would beg for food like a dog, and was very clamorous until its wants were attended to. It remained absent for a longer time on each successive occasion of its escape, until it reappeared no more. It would eat almost anything that was given to it, meat, bread, cake, sugar, butter, cheese, for the last of which it evinced an extraordinary partiality, and would come at the call of even a stranger if he held a morsel of cheese between his fingers. It would not touch vegetable matter of any kind. It was a thirsty little creature, and would eagerly lap up milk, especially if sweetened with honey or sugar. It was fond of weak tea, and even of beer, if diluted freely with water. Water itself it would not touch unless it was very thirsty. It would sleep for two or three days and nights at a stretch, while it would remain awake for even a longer period. When asleep it curled itself up, taking especial care to place its tail underneath its body. It appeared to sleep with one eye open, for if any person attempted then to play tricks with it, it was immediately on the alert, ready to wage a fierce fight for its protection, and woe betide the venturesome assailant who felt its sharp teeth in his fingers. It was very destructive when allowed to have its liberty; and if it could get into a room, it would smash every brittle article in it, china, glass, etc. It would upset the inkstand over the table or carpet, and do its utmost to show its mischievous nature.

The pole-cat and weasel are found in the south of Norway, but the ferret is unknown. The squirrel (*Sciurus vulgaris*) is common in all parts of Norway, even in the far north, although I am informed it does not visit the neighbourhood of the North Cape. In winter it becomes of a gray colour all over the body, except the cheeks and legs, which retain their rufous-brown hue all the year round. During the long and severe Norwegian winter, this little creature cannot procure its usual food, and it is then obliged to be satisfied with the tender shoots, and even with the outside bark of the birch. The climate of this country even sometimes makes the squirrel white.

The skin of the squirrel when gray is much more valuable than when it is red, as it can only be obtained at one season of the year. It is said, in an ancient Norwegian chronicle, that King Harald Erichsen received the name of *Graafell*, which I suppose signified gray fellow, because he wore an outer garment trimmed with the fur of the gray squirrel.

The Norwegian name of this little creature is *egern*. The *bönder* say that when it wants to cross a river or fjord, it floats on the surface of the water, puts up its tail for a sail, and the winds waft it gently over to the other side.

In ancient times, squirrels were ordinarily shot in Norway with blunt arrows, which knocked them on the head lifeless, without injuring the skin. They were also captured in snares, which were set at the foot of trees, and were baited with a bird's head or some other dainty; they were also hunted with small dogs.

Pontoppidan asserts that, in his time, flying squirrels

were found in Russia which could fly from tree to tree. The worthy bishop doubts the truth of the statement, and considers that they were but common squirrels that possessed unusual agility, and could spring rapidly from one branch of a tree to another. It is, however, asserted by travellers that a flying squirrel exists in the Rocky Mountains of North America, and in Fernando Po.

Squirrel soup is by no means uncommon in Norwegian country districts, and is not to be despised.

CHAPTER VIII.

The Glutton in Norway.—Where Found.—Its Voracious Appetite.—Ancient Writers concerning the Glutton.—Its Description.—Its Skin.—Superstition of Norwegian Peasants.—Quackery in Norway.—The Glutton in Lapland.—Lapp Method of Deceiving the Glutton.—Food of the Glutton.—Its Offspring.—The Hedgehog in Norway.—How the Hedgehog gets rid of the Bear.

THE glutton or wolverine (*Mustela gulo*) is common in the northern and central parts of Norway, especially in the Throndjem and Bergen Stifts. It is found in the Dovre-fjeld and other mountains frequented by the reindeer. It is but seldom seen in the woods and forests, for its favourite resort is in the highest mountains.

The glutton is carnivorous, and, like the wolf and lynx, destroys much more than it can eat; it does not, however, leave behind it what it cannot eat at one time, but conceals it in a secure place for an emergency. As its name implies, it is a voracious eater; it is always hungry, and is always ready to begin again after a hearty meal, while it is said to possess the power of disgorging its food, so that it is able to eat, and eat, and eat again.

Ancient writers had some curious notions concerning the eating powers of the glutton. Thus, Pontoppidan says, "If the glutton finds a carcass six times as big as itself, it does not leave off eating while a mouthful of it is left. It must be plagued with such an insatiable hunger that a full belly does not even satisfy it." The bishop also affirms that a personal friend, in whose truthfulness he could place implicit confidence, informed him that he had seen a glutton, when captured alive, a rare occurrence, and kept in confinement by being chained to a staple in a wall, endeavour to appease its hunger by eating the mortar and stones!" "Perhaps," says this quaint old author, "the glutton is created as a moral lesson for those men, of whom the apostle says, '*At deres Gud er bugen*,' 'Whose belly is their God.'"

Olaus Magnus, Archbishop of Upsala, in Sweden, asserts that the glutton squeezes itself between two trees, in order to get rid of the contents of its stomach, so that it may eat again. The same author adds, that if a person sleeps on a bed covered with a glutton's skin, he will be troubled with the most frightful dreams. He will have visions of dainty meats and expensive drinks, of which he cannot partake, although dying of hunger and thirst; and this tantalizing banquet will be spread before his longing eyes night after night without a single intermission.

The Norwegian glutton is long and thin in body. It is evident that its voracious appetite does not put much flesh on its bones. It is about three feet four inches in length. Its claws and teeth are sharp; its muzzle is pointed; its colour is black, streaked with brown and yellow; sometimes it is brown, with a

glossy black streak running along the back; the legs and feet are also black. The skin is much dearer than that of the wolf or lynx, as, from its glossy appearance, it is much more valuable. Unlike other wild animals in this severe climate, its colour does not vary throughout the year.

It was once supposed in Norway that the glutton was the third cub of a bear; and as the bear commonly brought forth only two cubs at a time, when she had a third, it was a *lusus naturæ*, which fully accounted for the peculiar propensities and gluttony of the animal. The Norwegian peasants are very superstitious, and place much faith in the marvellous. They have implicit confidence in the medicinal virtues of certain parts of wild animals, for, in fact, quackery of any kind pays well in this country. Indeed, quacks would abound in Norway were it not that the government, caring for the health and well-being of the people, treats charlatanism with the utmost rigour. If, however, it pleases the worthy Norseman to believe that the powdered bones, a draught of the warm blood, the application of a poultice made from the minced flesh, or a necklace made of the claws of a certain wild animal, has a remedial effect on the human frame, either by outward application or by internal digestion, we can hardly blame them for their credulity, for such notions can do very little harm, if they do no good; they are not much more hurtful than bread pills. It is also true that, in the cure of certain complaints, the imagination plays an important part; and if a man wears a bear's claws round his neck to stop the bleeding of his nose, the talons of a lynx to ward off the cramp, or an electuary made from pow-

dered hare's flesh to cure the rheumatism; it is just possible that faith in the agent applied may accomplish the desired effect. In Norway it is supposed that a fillet of glutton's claws, worn round the head, has the effect of dispelling vapours and giddiness; and that an ointment made from the grease of this animal is a certain cure for cutaneous eruptions. The fur of this gluttonous creature is so thick, fine, and smooth, that its grease is as much esteemed as "thine incomparable oil, Macassar."

The glutton is called by various names in Norway. The most common is *viel-fras*, the word *viel* being no doubt a corruption of *fjeld*, so called because the animal frequents the mountains. It is called *kola* in the Throndjem Stift, and also *jerven*, *erven*, and *gierv*, in different parts of Norway.

Like the lynx, the glutton is not gregarious; but pairs, and the male and female keep close together; should the male be killed, the female is certain to be found somewhere near. It is also as active and expert as the lynx, and its long and sharp claws enable it to climb trees with facility.

The glutton is thoroughly detested in Norwegian Lapland, for it is as destructive as the lynx among the Lapps' tame reindeer. The Lapps, however, have various ways of circumventing and destroying the animal, and the following is a common method of deceiving its suspicious nature:—When the tent is pitched on the spot where the Lapp intends to remain for some time with his family and reindeer, he sets up a high table, which he fixes in the ground. This table is made of the dried branches of the birch, and on it the Lapp places at night his reindeer venison, and other pro-

visions. The glutton comes after dark sniffing and prowling round the tent, and arriving at the birch table, which is about five feet high, it surveys it, suspects that it is a snare, and makes off as fast as it can.

Mr. Lloyd mentions the following stratagem adopted by a Lapp to destroy a glutton:—"During his rambles through the forest the Lapp discovered a glutton in a tree. Unfortunately, however, he had not wherewithal to destroy the beast; but to deter it from descending the tree, while he hastened home for his gun, he fixed an upright pole in the ground near to the tree, and with his pels, or fur cloak and cap, rigged out a counterpart of himself. This notable expedient perfectly succeeded, for on his return some time afterwards he found the glutton still in the tree, and presently made him his prize."

The glutton lives entirely on flesh. It climbs trees in pursuit of birds; it attacks the elk, and pursues the reindeer for miles, until it approaches near enough to make its fatal spring. It also feeds on rats, mice, and lemmings; and destroys a vast number of hares. Some travellers have asserted, and among them Dr. Richardson, that the glutton does not pursue and kill the reindeer. It is now pretty well acknowledged that it does; and when it springs on the reindeer's neck, it lacerates the flesh and tears open the veins of its prey with its powerful claws, when the poor creature loses so much blood that it falls down exhausted and expires.

The glutton breeds only once a year, and produces a litter of two, sometimes of three young ones. The flesh is rank, and not palatable, but the Lapps eat and enjoy it very much. No doubt this taste for its flesh, on the part of this diminutive people, arises partly from spite.

This animal is not easily captured. It is generally run down by dogs, while it is often shot. Pitfalls are dug for it in vain, unless very carefully guarded round the edges, so that when the brute has tumbled in, it cannot get out again. Some are taken in the common steel trap, but the trap is not baited; it is simply placed in the track of the animal, which accidentally passes over it, and is caught. Considerable care must be observed in handling the trap, so that the naked hand may not touch it; gloves are, therefore, necessary, for the glutton has a very keen scent, and will avoid a trap that has been touched by a human hand.

Although the skin of this creature is valuable, it is so given to shedding blood, and its habits are so destructive, that it is much wished in Norway that it should be exterminated.

The hedgehog (*Erinaceus Europæus*) is now but rarely seen in Norway. It is, in fact, so scarce, that when a specimen was required for the Zoological Museum at Christiania, it was necessary to send to Germany for one. It is called in Norway *pind-sviin;* the name of the female is *pind-so;* its ancient Norse name was *buske-dyvel,* or bushy devil. It feeds on worms, slugs, beetles, eggs, wild berries, and vegetables. The female brings forth from two to four young at a birth. The young are born naked and blind, and are covered with short, soft spines, which soon become hard and strong.

It is said in Norway that the hedgehog drives away the bear from his den in the following manner:— On coming to the bear's "hie," the hedgehog enters it, at which piece of presumption Bruin is overwhelmed with astonishment and rage. He puts his nose to the

body of his diminutive visitor, to discover what it is. The hedgehog, displeased at this impertinent curiosity, bristles up, and pricks the bear's nose. Wherever the bear moves, if he lies down, if he stands upon his hind legs, if he carefully places one paw on the ground before the other, he comes in contact with the sharp spines of the hedgehog. If he goes to sleep, the hedgehog crawls on to his huge carcass, and darts its prickles into the bear's most tender parts, causing him to have unpleasant dreams. This sort of treatment enrages the bear beyond measure; the den soon becomes too hot to hold him, and, with a howl of mingled rage and despair, he rushes headlong forth, leaving the hedgehog in quiet possession of the premises.

CHAPTER IX.

The Otter in Norway.—Where Found.—Its Description.—Its Habits.—Its Nest.—Its Offspring.—Mode of Capture in Norway.—Food of the Otter.—Bishop Heber's Description of a Tame Otter.—The Otter in Confinement.—The Beaver in Norway.—Where Found.—Its Description.—Its Tail.—Its Habits.—Republican Notions.—Food of the Beaver.—Its Flesh.

THE otter (*Lutra vulgaris*) is common on all the west coast of Norway, and is also found on the banks of large rivers and inland lakes. Pontoppidan says that in his day it was as common on all fresh waters as it was on the seacoast.

Although the common otter is a marine animal, capturing fish on the seashore, and frequently swimming out to a considerable distance from the land, in search of its prey, it must not be confounded with the sea-otter (*Enhydra*), which is a different creature, and is not to be found in any part of Norway.

The otter in this country is about two feet long; its tail is long and flat, and is about thirteen to fifteen inches in length. This caudal appendage is used by the animal as a rudder, by which it turns itself with astonishing rapidity and dexterity in the water; it is

so jointed as to be extremely flexible. The legs are short and strong; the feet are broad and webbed, so that it can swim and dive; the eyes are small and piercing, and are placed near the nose; the ears are short and upright; the teeth are long and sharp. Its colour is peculiar. It has two kinds of fur, an inner and shorter, as well as an outer and longer; the shorter hairs are pale gray, tipped with brown; the longer ones are darker gray, also brown at the ends; the under parts of the body are brownish-gray; the nose and whiskers are black.

In Norway the otter skins are generally purchased by the Russians.

The otter which frequents large rivers and lakes abides in holes, and under the roots of trees near the water. Here the female makes a nest of dry grass and rushes, and having gone nine weeks with young, she produces, in the spring time of the year, an interesting little family of three or five. Now we see why the nest was placed near the water; for, soon after the young are born into the world, the mother teaches them to take to their natural element, as well as to swim and dive, so that they may be out of harm's way, should danger approach on land,—so kind is nature in teaching the meanest creatures how to act through their instinct. The otter which frequents the sea-coast conceals itself in rocky caves, or in cavities under large boulders among the shingle on the beach. Soon after the young are born, they are conducted to the salt water, and are taught by their parent how to swim and dive; and they even venture out to a considerable distance from the land, while the mother paddles round them, to see that no youngster, in search of adven-

tures, goes too far out, and that no cunning monster of the vasty deep may approach to injure her progeny.

As a general rule, the young of animals are pretty, but it is quite the reverse with those of the otter, for they are more ugly than their parents, and that is saying a good deal. Their heads are misshapen, their ears hang loose and uneven, their eyes are almost closed up, their movements are ungainly and awkward, and they are incessantly uttering a fretful and whining cry.

The otter is not hunted by dogs in Norway, as it is in England. It is taken in the following manner:—The otter's hole is first discovered, then a flat piece of wood is placed in the earth or sand at the entrance of the hole. In this flat piece of wood several iron spikes are fixed, while a heavy log is kept upright, and over the iron spikes, by means of a thin, broad piece of stick. The luckless otter sets out on an excursion; it is on piscatorial intentions bent, and coming to the mouth of its hole, it comes in contact with the trap, displaces the stick that sustains the log, which falls, and the poor little creature is transfixed on the iron spikes, when it wriggles about for a moment, and dies. Sometimes the male otter is attracted from his den by imitating the shrill cry of the female; this is effected by a peculiar kind of whistle. The otter has none of that finer instinct which is observed in the beaver; while, on the other hand, the latter industrious little animal always drives the otter away from its haunts, and it is an understood thing that the beaver and otter are never to be found near the same waters. It would appear that these rival fishers always pertinaciously avoid the localities frequented by each other, and only meet by accident.

The otter does not take the trouble to make a regular domicile for itself. It seems to be too idle to do that, or, perhaps, it will not take the pains to obtain a habitation formed by its own industry, as is the case with the beaver and badger. It takes up its abode in natural holes in the ground, in the crevices of rocks, under large stones, and sometimes even among floating timber. Its den has by no means a pleasant smell, as it is often the receptacle of stinking fish, which is considered a *bonne bouche* by the animal.

The otter feeds on various kinds of fish, which it catches with much skill and dexterity. It destroys much more than it is able to eat, and feeds on the most delicate parts, wasting the remainder. It does not eat the head or tail of a fish, but prefers the back part of the neck. When fishes are scarce, and it is pressed by hunger, it leaves the water, and betakes itself to the farmyard, where it preys on poultry, sucking-pigs, and even on young lambs. When pursued by dogs, it dives under water, and, if hard pressed, turns at bay, and severely bites its persecutors.

The otter can be tamed, and especially when it is captured young. Bishop Heber states that he once passed a river in India where nine or ten otters were busily engaged swimming about in the water, "tethered with straw collars and long strings to bamboo stakes on the banks."

When first captured, the otter is wild and fierce, and attempts to bite the person that feeds it; after some days, the loss of its natural element renders it sick and feeble, when it becomes more tractable. If it does not die, it soon becomes reconciled to its fate, and may be tamed. The chief difficulty is to keep it

alive. It should be fed at first with small fishes, then with milk, and, after a short time, with bread and milk. When sufficiently tame, it may be taught with an artificial or even with a dead fish; should it injure the fish, it must receive a gentle castigation with a whip. When it knows how to dive in pursuit of a fish in the water, it should be sent in to catch fishes for its master.

The colour of the otter does not vary during the winter in Norway. At this time of the year, when pressed by hunger, and fishes are not to be obtained, it feeds on crabs, limpets, frogs, and even on water-rats, as well as on the bark of trees that grow near the water.

The beaver (*Castor fiber*) was formerly very common in Norway, and was principally found in Soloer, Österdalen, Gudbrandsdalen, and Jemteland; there is still a Bæver-dalen and a Bæver-elv, or river, in Österdalen. It is now only to be met with on the estate of Mr. Aall, a gentleman who resides near Arendal, in the south of Norway. The Norwegian beaver is about two feet ten inches in length, exclusive of the tail, which is eight or ten inches more. Its colour is dark-brown, but some are gray, through age or the effect of climate. The tail is flat and oval, and is covered with scales. It is said in Norway that the beaver cannot let its tail remain long out of the water, so it always sleeps with it hanging down in its natural element, otherwise that useful appendage would become unserviceable. It is also believed here that, in the beginning of winter, when the rivers are about to freeze, the beaver keeps a space around him unfrozen by incessantly wagging his tail in the water, which he does

even in his sleep; and thus, in the most severe northern winter, he can always dive into and swim about in his proper element! Next to the tail, the most important article about the beaver is the front teeth; these incisors are long and sharp, and are protected by a yellowish-red enamel. With these teeth, the creature fells trees, such as the willow, birch, and poplar, which grow near the water. According to Pontoppidan, when the beavers wish to get their building materials to the localities chosen for their habitations, they use one of their fellows as a waggon, and the rest drag along this strange vehicle by seizing the porter-beaver by the throat with their teeth. The beaver which was thus used as a beast of burden was laid on his back, with his legs extended as far apart as possible, between which the branches of the trees were placed, and thus one load after another was conveyed to its destination. "This work," adds the bishop, "makes the back of the beaver bald, as all the hair upon it is lost, which hair in other cases is thought most highly of, and is, as is well known, used for the finest hats, as well as for a sort of fine cloth." It is interesting, therefore, to know that beaver hats were worn in Norway so far back as the middle of last century.

The beaver is republican in his notions, and banishes from his society any member that has committed a serious offence against good government. The beaver thus exiled is shunned by all his former companions; he wanders away from his tribe, and lives in a hole which he burrows in the ground. It is just possible that the beavers mentioned by Pontoppidan as employed as beasts of burden were some incorrigible

offenders that were put to "hard labour" as a punishment for misdemeanours against the community. The beaver was once called in Norway *erke-bygmester*, or arch-master-builder, on account of its constructive talents.

In summer the Norwegian beaver feeds on green herbs and plants that grow near the water; in autumn it eats the numerous kinds of wild berries that are so plentiful in this country; in winter the food consists of the outer bark of the willow, birch, and poplar. The female brings forth two or three young ones in the early part of summer. At this interesting time, the male ungallantly leaves his wife, and only pays her an occasional visit during the whole time the young are with her.

In Norway the beaver makes its habitation close to a running stream, and rather lower than the water. The dwelling is divided into three compartments, and the male and female reside in separate chambers; these compartments are divided by slight partitions, which serve, doubtless, to prop up the entire edifice. The building materials consist of branches of birch, willow, and poplar, as well as of mortar made of mud and mixed with stones. In process of time the branches of which the habitations are constructed throw out shoots and leaves; the herbage around, also, grows; and the beaver-dwellings become concealed, and are not easily discovered. It is evident that this industrious little creature was once very common in Norway, for we are told that its fur was an article of considerable trade at the ancient Norwegian fair of Elverum. The *castoreum*, anciently called in Norway *bibergeil*, is a secretion contained in two small glandular

sacs, and is of a musky smell and acrid flavour. It was formerly used in medicine, but is now chiefly employed in the manufacture of perfumery; it gives the specific designation of *Castor* to the animal.

The flesh of the beaver resembles fresh pork in taste; when it was common in Norway, it was in much request. The part most in requisition was the tail; this was considered to be neither fish, flesh, nor good red-herring, but a mixture of all three, and was esteemed as a rare delicacy.

Although the beaver is now strictly preserved on Mr. Aall's estate, the number does not perceptibly increase. The peasants in the neighbourhood could, probably, tell the reason why. The Norwegian *bönder* are inveterate poachers.

CHAPTER X.

The Lemming.—Where found in Norway.—Description of the Animal.—Its Habits.—An Experiment.—Its Results.—A Singular Line of Argument.—Migration of the Lemming from the North.—Cause of the Migration.—The Migratory Hordes.—What becomes of them.—Grimalkin and the Lemmings.—Pugnacity of the Lemming.—Its Food.—A Plague of Lemmings.—Singular Superstitions.—Opinions of Ancient Writers.—An Exorcism.—The Lemming's Nest.

THE lemming (*Lemmus Norwegicus*, Wormius) is a little rodent animal which is very common in Norway, and has engaged the attention of naturalists, as it is peculiar to the country. Its home is in the fjelds of Nordland and Norwegian Lapland, and it is sometimes common in the Dovre-fjeld. It has received various names in this country, such as the *fjeld-muus*, or mountain mouse, *lemming*, *lom-hund*, *lœmus*, *lœmen*, *sabel-muus*, *norsk-muus*, etc. etc. It is called *lummick* in Norwegian Lapland.

The following is the description of a lemming captured by the author near Christiania in 1863:—The occiput and crown of the head, running on to the nose, jet black; upper part of the neck, black; two streaks of tawny-yellow running down the sides of the neck;

a black line from the back running on to the short tail; the lower upper surface of the body, tawny-yellow, tinged here and there with black; the whole under surface of the body pale buff, rather lighter on the throat; the eyes small, round, black, and piercing, and on each cheek long, black and white whiskers. The length five inches, with a mere stump of a tail; each foot has five toes; the upper lip incised, and each jaw has two sharp teeth. In colour it resembles a guinea-pig, in shape and size it is like a mole.

It was at one time supposed that there were two species of lemming in Norway, viz. the *fjeld-lemming*, which frequented the mountains, and the *skov-lemming*, which abode in the woods. This is now acknowleged to have been a mistake. The Norwegian differs much from the Russian lemming, as the latter is much smaller in size.

The lemming does not burrow, although, when the snow is on the ground, it makes openings in it in search of food, and is then said to do serious damage to the growing grass, for the grass in this country grows underneath the snow. When there is no snow, the little creature lives in narrow furrows among the herbage, or in small, natural holes in stony ground. The lemming is not easily kept in confinement, but soon misses its liberty, pines, and dies. Some time ago a friend of mine, while on a visit to Norwegian Lapland, thought he would avail himself of the opportunity to carry a few lemmings home with him to Christiania. With this intention he purchased twenty-five in Finmark, which he placed in a long basket, with sufficient vegetable food for their sustenance until they arrived at Throndjem. At Throndjem a

long wooden box was made expressly for the lemmings, and this was properly strapped beneath the carriole. The result was not encouraging; the little animals died off, one after the other, and when in sight of Christiania, a sole survivor remained. My friend, disappointed at his want of success, very unkindly killed the surviving lemming, assigning a somewhat Irish reason for his cruelty, "If the lemming had been two, I would have kept them to breed from; but as they were only one, I killed it." It is not surprising that the enterprise failed, when undertaken by a gentleman so deficient in grammar, logic, and patience. Another friend in Norway informed me that he had frequently captured lemmings in the fjeld, and had carefully transported them to his house, where they invariably died; they are, in fact, such tender little creatures, that a rough grasp of the hand, or a slight blow of any kind, will cause them to sicken and die.

The migration of the lemming from the north occurs at uncertain periods. Sometimes they migrate for several successive years, while sometimes an interval of ten or twelve years elapses between their migrations. Some persons assert that the migration is caused by the little creatures knowing instinctively that the coming winter will be unusually severe. If such were the case, why is it that the lemmings migrate in the spring, and not in the fall of the year? Others assert that the migration is caused by an unusually severe winter, which so hardens the snow that the lemmings cannot work into it to get their requisite food, and so they abandon the inhospitable region in search of fresh pastures and a more genial climate. Perhaps the true cause of the migration is, that instinct teaches these

little creatures that their numbers are so multiplying in the northern latitudes that it is necessary that a part of them should leave for other localities. Be that as it may, they certainly do migrate, at least great numbers of them do so; and when they have once left their usual haunts, they wander onwards until they come to the mighty ocean, which they enter, still in search of some imaginary land of plenty, to meet a watery grave. If this be correct, then man is not the only animal that has visions of Utopia. It is a well-ascertained fact, acknowledged by all naturalists acquainted with the habits of the lemming, that the migratory hordes never return to the place from whence they set out. None are ever observed going back to their abandoned homes in the dreary northern land. When they leave the northern fjelds, they wander off to various points on the North Sea; great numbers cross the mountains to the west coast of Norway, and are drowned in the lakes and fjords on their way thither; others go to the Gulf of Bothnia, and are drowned there. When migrating, large numbers fall victims to wild beasts and birds of prey. The lynx, glutton, and white fox, leave the north in pursuit of the lemmings when they migrate; many birds of prey do the same, eagles, hawks, owls, and especially the gray or Lapland owl, and the snowy owl. If, therefore, the English sportsman or naturalist should happen at any time to be in Norway when the lemmings are migrating, many rare specimens of birds will fall before his gun, if he keeps in the track of the little creatures. It is said that the reindeer feeds on the lemming during its migration, but becomes emaciated when it does so.

In the spring of 1863, one of the periodical migrations of the lemming from the north of Norway took place. Many made their appearance in the neighbourhood of Christiania, but they were few, indeed, in comparison with those that made their way over the western fjelds to the coast. I was informed that such incredible numbers perished on their journey in the lakes and fjords, that the smell of their putrefying bodies tainted the air, and that cartloads of them were buried by the inhabitants, in order to prevent an epidemic. During the migration an amusing scene might have been witnessed early one morning in a gentleman's garden in the environs of Christiania,—a cat was up betimes, and was prowling about in search of small birds. Coming to a retired corner of the garden, Grimalkin suddenly stood still, arched her back, and displayed unmistakable signs of anger, if not of fear. A pair of live lemmings were the cause of this state of things; they were, evidently, animals unknown to the cat. As soon as her astonishment and anger abated a little, Puss made a sudden spring, and put an end to the lemmings. She did not attempt, however, to eat them, but quietly left the spot, and did not return to it again. Neither cats nor dogs will eat the lemmings, although they will kill them.

The lemming is a fierce and pugnacious little creature. It attacks horses in Norwegian Lapland, and travellers are often, in this way, put to considerable inconvenience, for a horse thus attacked by several lemmings, which jump up at and bite its legs, often becomes ungovernable and runs away at a headlong speed. When a human being comes across these diminutive creatures, they arch their little bodies, bristle

their long whiskers, twinkle their sharp little black eyes, stand on their hind legs, and squeal shrilly, as if they were about to contend in a savage combat. As a proof of this combativeness, it is said that in the summer of 1788, when a review of some cavalry regiments was being held near Throndjem, the lemmings made their appearance on the ground in great numbers, and as the soldiers gallopped about, the little animals stood on their hind legs, and gave a great squeal, as if they had been prepared to fight, if the dragoons had dared to charge them. When the lemming migrates, it goes straight forward, and nothing impedes it. It climbs mountains, scrambles over, or marches through houses, swims across rivers, lakes, and fjords, and races down hills. It only travels by night, and conceals itself by day, when it takes its rest. Arrived at a broad river, lake, or fjord, it is said that a number of the strongest form a bridge across with their bodies, over which the weaker ones pass.

The lemming feeds on grasses and their seeds, as well as on tender plants that grow on the ground. It sometimes does great damage to the crops, for it is extremely partial to young cereals, viz. wheat, rye, and barley; but very little injury is done, unless it takes up its abode for a considerable time in any particular locality.

Mr. Lloyd gives the following interesting account of the destructive habits of this little animal, on the authority of a Norwegian clergyman :—"During certain years the lemmings at times make their appearance here (west coast of Norway), as well as in all the country round about, in inconceivable numbers. The

year 1827, more especially, they did an immensity of injury, having arrived when the grain was still on the ground. In 1834 they did less damage, because the harvest was then for the most part housed. Their ravages might almost be compared to those of the Egyptian grasshopper. In 1827 people erected scaffolding, that the corn might be raised above the ground; but they, nevertheless, climbed up to the sheaves, where they sat as thick as birds. What with battles amongst themselves and with the cats, they made such a noise near to the parsonage, that it was difficult to sleep, and if the door was left open, they entered the house itself. They never descend to the valley until the grass on the fjelds is withered and dried up; and in the places overrun by them they so gnaw the sward itself, that it is needful to send the grass to the opposite side of the fjord to prevent other animals dying of hunger. Before the winter sets in, nine-tenths of them commonly swim out into the fjord and perish; but the residue remain during the whole winter, and make for themselves numerous runs under the snow, and so gnaw away the bark from the trees and bushes, that in the spring a white ring is formed near to their roots, from which injury they soon perish."

It is to be regretted that the lemming's skin is considered of no value in Norway. It is soft and warm, and one would suppose that it could be turned to some practical account. In the far north it certainly serves the purpose of lining for birds' nests, and large owls not only line their nests with the lemming's hair, but strip off whole portions of the skin of the little animal wherewith to keep up a comfortable degree of warmth for their young when they come unfledged into the world.

Many singular superstitions prevailed in Norway concerning the lemming, and do so still in certain country places. Some of the ignorant peasants still believe that the lemmings fall from the clouds, and an ancient chronicler has left this statement behind him, "*Læmings illis dicti sunt mures noxii segetibus, Norwegis peculiares, quos cælo decidisse,*" etc.

Olaus Magnus described the lemming as a little animal with four feet, and of "divers colours," which fell from the air during tempests and heavy showers. He also supposed that they were either brought during great storms of wind from remote countries, or were engendered of putrescent matter in the heavens. The same quaint writer thought it very strange that when the lemmings fell from the clouds to the earth, grass in state of semi-digestion was found in their stomachs; but this ought to have been a convincing proof that they had never left the earth at all. Olaus Magnus further describes the lemmings as like locusts, destroying everything green before them, while their bite was considered to be venomous. People who resided in the neighbourhood of heaps of dead lemmings were afflicted with giddiness and jaundice. Says Pontoppidan, "Of Norway's four-footed creatures, one description is found which belongs to the tribe of rats or mice, and which some persons call lemming; from what we see of them, though, God be praised! that is not often, once or twice in twenty years, they increase very fast. When they migrate they assemble in great flocks of some thousands, like the host of God to execute His will, namely, to punish the inhabitants by the destruction of the seed, corn, and grass; for where this flock goes forward they make a visible trace on the

ground, cutting off all that is green and what they can overcome, which they do until they reach their appointed destination or limit, which is the ocean's water, in which they swim about for a short time, and at length drown."

Pontoppidan has a word to say also about the falling of the lemming from the clouds. "There remains one thing doubtful, which is this, whether it is to be believed, according to common rumour, that the lemmings do fall from the air. Wormius, Scaliger, and other great men, do not think this impossible to be, as frogs and other small creatures can in their embryo state be drawn up into the clouds, and, being formed, at length fall down; *cum igitur tot animalium genera in nubibus generata pluviis, fide dignorum auctorum constet testimoniis.*"

It is a fact interesting to naturalists that the lemming when migrating a century ago, followed precisely the same course that is adopted in these days. This is proved by the concurrence of all naturalists in Norway. Another fact worth mentioning is this, although the migration of these little creatures is considered to portend a bad harvest, the hunters expect good sport that year with the lynx, fox, and glutton, for those animals follow in pursuit of the lemmings.

So great a misfortune was the invasion of the lemmings considered in ancient times that a regular fast-day, or *bede-dag*, was kept once a year to avert the plague. The following is a copy of the exorcism pronounced by the clergy in the churches throughout Norway on those fast-days:—"*Exorcizo vos pestiferos vermes, mures, aves, seu locustas aut animalia alia per Deum Patrem Omnipotentem, et Jesum Christum filium*

ejus, et Spiritum Sanctum ab utroque procedentem, ut confestim recedatis ab his campis, seu vineis, vel aquis, nec amplius in eis habitatis, sed ad ea loca transeatis in quibus nemini nocere possitis, et ex parte Dei Omnipotentis, et totius curiæ cœlestis, et Ecclesiæ Sanctæ Dei, vos maledicens, quocunque ieritis sitis maledicti, deficientes de die in diem et decrescentes quatenus reliquiæ de vobis nullo in loco inveniantur; quod præstare dignetur qui venturus est judicare vivos et mortuos et sæculum per ignem. Amen. Oremus."

Various conjectures have been formed as to what becomes of the lemmings when, after their migration, they have arrived at the end of their wanderings. Some persons suppose that when they arrive at the seaside, they enter the water and, swimming out to sea, are drowned. It is most likely that when they come in sight of the sea, they get a glimpse of the islands in the distance, off the Norwegian coast, and swimming out to them, their strength fails them, and they are drowned.

The lemming constructs a snug little nest of blades of dry grass and bits of straw, which she lines with the hair from her own body; she brings forth five or six young ones at a birth, and breeds several times in the year. When migrating, she carries as many of her offspring as she can in her mouth and on her back.

CHAPTER XI.

The Ermine in Norway.—Where Found.—Its Skin.—A Royal Gift.—Habits of the Ermine.—Its Nest.—Its Offspring.—An Ingenious Expedient.—Pugnacity of the Ermine.—The Ermine and the Bear.—A Small but Dangerous Assailant.—The Ermine and the Eagle.—Method of capturing the Ermine in Norway.—Its Food.—Its Colour.—Medicinal Virtues.—The North Cape.—Its Description.—French Travellers in Norway.—A Singular Mistake.

The ermine (*Mustela erminea*) is found in all parts of Norway. It is one of the few quadrupeds that are to be met with in Magerö, near the North Cape. During the winter months ermine-skins may be frequently purchased in the Christiania market; their cost is about ninepence each. In winter the hair is much longer and softer than in summer. Great numbers of these skins are sold by the Norwegians to the Russians, who sell them again at an exorbitant price to the Chinese, as well as to the Turks. In ancient times ermine-skins were held in great estimation, and were even considered a gift worthy of royalty itself. When King Christian I. of Denmark paid a visit to the court of Rome, he took with him some of the most valuable productions of his dominions, and among other things were some

ermine-skins which he presented to the Pope, who was much pleased with them.

The ermine is called in Norway *hermelin,* and also *röse-rat,* or the rat dwelling in holes. The little creature is an excellent swimmer, and on the coast of Finmark it frequently goes on a voyage of discovery to one of the small islands adjacent to the mainland in search of the eggs of the seafowl which are found in the crevices of the rocks there. Sometimes the female makes her nest under a heap of stones near the water on one of these islands, and brings forth her young there. It is, in that case, a serious question with her as to how she is to convey her offspring in safety over to the mainland. "Necessity is the mother of invention," and the little ermine hits upon the following ingenious expedient. Having hunted about until she has found a piece of wood of as smooth a surface as possible, she places her young ones upon it, and pushing this frail vessel gently into the water, she herself swims carefully by its side, in fear and trepidation for the safety of her charge, but, at the same time, with implicit confidence in her own skill. Now and again she gives a gentle push with her snout or fore-paw to the tiny bark, until at length, wearied but not overcome, she arrives at the distant shore, proud, as she has reason to be, at the success of her efforts.

The ermine brings forth her first brood, which are from three to five in number, by about the end of May; she breeds two or three times in the year.

The ermine, although so small, is a fierce and pugnacious little creature, and will even attack human beings when assailed; it is doubtful if it has ever been tamed. It will certainly live in confinement, but

must always be kept a close prisoner, while even then it will bite the person that feeds it. It is said in Norway to be so fierce that even the bear is afraid of it. When the bear happens by chance to approach the ermine's retreat, he meets with an unpleasantly warm reception. His little antagonist rushes forth in quite a storm of passion, its eyes sparkling with rage, and springs at the bear's ear, where it hangs on, biting and scratching with might and main. The bear experiences a mixed feeling of astonishment and fear; he feels the pain, but is unable to rid himself of the tormentor. The more he shakes his unwieldy head, the closer clings the ermine, biting and scratching with his sharp teeth and claws all the time. The bear is ashamed at being vanquished by so contemptible a foe, so he rushes away headlong, his head bent down, his "eyes in a fine frenzy rolling," stamping with his feet, and howling with all his might, until at length, the ermine working away at the unfortunate victim's ear all the time, the bear becomes so exhausted with rage and loss of blood, that he cannot see before him, but falls over the nearest precipice in his course, and is killed; the ermine, of course, leaps off the bear's ear just in the nick of time, that is, when Bruin comes to the edge of the precipice.

Sometimes the ermine meets with its fate in a singular manner. The little creature in its rambles falls in with an eagle asleep, when it coolly springs on the back of the king of birds, and works away rapidly with teeth and claws. This, of course, awakens the eagle, and feeling some disagreeable stinging thing on its back, the noble bird soars aloft, the ermine still clinging to it. Presently the eagle gives himself a shake,

when the ermine falls to the ground, and is killed. It is customary to shoot the ermine with blunt arrows, which cannot penetrate, and, therefore, do not injure the skin. It is necessary that the little animal should be struck on the head, and either stunned or slain, so that the fur may not be damaged. It is also captured in various kinds of traps; but the most simple, and that which is generally adopted in this country, is this: two large flat stones are placed where it is known that ermines have their runs. One stone is propped up over the other by a piece of wood, to which an enticing bait is attached by a string. The ermine seizes the bait, the stick falls, the upper stone drops down on the lower one, and squeezes the poor little creature to death. The skin, of course, remains uninjured.

The ermine resembles the weasel in appearance, but is rather larger in size. Its food consists of small birds, their eggs, rats, mice, and leverets. In the north, it feeds greedily on the lemming, and the eggs of seafowl. Its colour in summer is rufous-brown on the upper parts, and yellowish-white on the under surface of the body; it becomes white all over in winter, but with a yellow tinge. The tip of the tail is always black. It has wonderful powers of suction, and when it attacks a leveret or a large rat, seizes them by the throat, and sucks their blood. At certain seasons it emits a strong odour of musk.

Some persons in Norway believe that a draught of ermine's blood, taken when warm, is a cure for epilepsy, as well as for fainting-fits. A draught of the warm blood is also supposed to invigorate an aged person.

As the ermine, the hare, and the lemming are the

only quadrupeds to be found in the neighbourhood of the North Cape, a brief account of that dreary headland may interest the reader. The North Cape is the highest promontory on the northern shore of Magerö, or the lean island, so called on account of its barrenness. Magerö is also the most northern of the Norwegian islands. The North Cape is not, however, the most northern point of Norway and of Europe. That distinction belongs to the Nordkyn, a low promontory, lying some miles further to the east. But as the Nordkyn is low, while the North Cape is 950 feet above the level of the sea; and as the Nordkyn does not stretch so far north, the North Cape will always be considered the most northern point.

The North Cape is not a Norwegian appellation, and this designation was not given to it by the Norwegians, but most likely by the English sailors, who passed it on their way to Archangel.

The rock forming the North Cape is perfectly smooth and level on the summit. The character of the scenery around it is by no means enlivening, for it is desolation personified. Huge, towering rocks; constant tempests; mighty masses of snow and floating ice; swarms of seabirds, which hover round the inhospitable shore, or perch on the rocks with dismal cries; the land everywhere void of vegetation; such are the objects of this gloomy spot, which remind the spectator of Cowper's lines:—

> "O Solitude! where are the charms
> That sages have seen in thy face?
> Better dwell in the midst of alarms,
> Than reign in this horrible place!"

It is an interesting fact, to be attributed to the in-

fluence of the Gulf Stream, that the sea in the vicinity of the North Cape is never completely frozen. Pontoppidan makes mention of this fact. "It is a strange circumstance," says the Bishop, "namely, open waters in the north, while in the south they are frozen."

A whimsical mistake was made some years ago by some French travellers concerning the locality of the North Cape. Having arrived at a point of land on an extensive lake in Swedish Lapland, they supposed they had reached the North Cape, although they were then between two and three hundred miles distant from it. They determined, however, to erect a monument which should inform succeeding generations that they had visited the most northern point in Europe; so they erected a heap of stones on the summit of the hill by the side of this Swedish lake, whereon they placed an inscription, that France gave them birth; Africa, India, and the whole of Europe had been seen by them, and that now, having arrived at the "end of the world," they wished to announce the remarkable fact to all future comers. The names of the travellers were modestly given at the end of the inscription. I have been informed that, on his return home, one of the travellers published a minute account of his visit to the "end of the world."

Besides the ermine, hare, and lemming, a few tame reindeer are kept by some wandering Lapps on Magerö. The latter must have a melancholy time of it, for, on account of the constant roughness of the sea, they are very seldom able to visit the mainland.

CHAPTER XII.

The Tame Reindeer in Norway.—Reindeer Flax.—A Lapp Lady.—Reindeer Harness.—The Travelling Sledge.—Viciousness of the Reindeer.—Food of the Tame Reindeer.—Reindeer Cheese.—Reindeer Dogs.—Superstitious Feelings of the Lapps.—Hospitality of the Lapps.—Reindeer Venison.—Mode of Slaughtering the Reindeer in Lapland.—Rich Lapps.—Food of the Lapps.

It will not be out of place in a work like this to give some account of the tame reindeer. It is true, those interesting animals are not exactly savage; at the same time, it must be confessed that they live almost entirely in a wild state. They wander at large on the mountains in the north of Norway, and are only kept in a semi-state of subjection.

The reindeer furnishes its master, the wandering Lapp, or native of Norwegian Lapland, with food; warm fur coats are made from its skin, as well as excellent leather; spoons, forks, and other articles are made from its horns; while the only household gods that the poor Lapp possesses are made from the bones, sinews, or muscles of the same serviceable creature. The reindeer also draws its master's sledge, and transports its master's worldly goods from one place to

another. The nerves and sinews of the animal are dried, then they are softened by being steeped for some days in water, when they are worked up and made into an article resembling flax; a substance as fine as cotton, and much stronger, is manufactured from this flax. The weaving apparatus looks like a large white comb, and is made of the broad frontal horns of the reindeer. The hide of the reindeer is tanned, and makes strong and durable harness, boots, and other articles.

A Lapp female of the higher class wears a case of reindeer leather hanging from a girdle round her waist, at one end of which is a leather thimble, as well as a receptacle for needles, which last is covered with a moveable sheath of brass. The girdle is of solid silver, generally gilt, and is ornamented with engravings of roses, lilies, and forget-me-nots. This latter article is really a very pretty work of art, and would not be despised by some village coquette. There is very little of the flirt, however, about the Lapp *belle*. She is a plain, sensible woman, who has to take a practical view of every-day life; and she has, moreover, to assist her husband in his daily labours. She has to milk the reindeer, to turn the milk into cheese, to cook the dinner for the family, and to see that everything in the tent is kept in proper order and in its place. She is at no times good-looking, and, as old age grows upon her, she becomes positively ugly.

The reindeer harness is of leather, manufactured from the hide of the animal. It is very strong, and is ornamented with scarlet cloth; for the Lapp has a mania for bright colours. The scarlet housings are adorned with the hair of the deer dyed black for the

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Vincent Brooks, Day & Son, lith.

LAPLANDERS AND TAME REIN DEER

purpose, and embroidered artistically; the scarlet and black colours form an agreeable contrast. In speaking of the harness, we allude to the collar which goes round the reindeer's neck, as well as the reins which are fastened to it. The initials of the owner's name are worked on this scarlet collar with black thread. The reindeer is fastened to the sledge by a single strap, so that it is harnessed in a moment, and is then ready to start off on its journey. The travelling sledge is called in the Lapp language *raido-geris*, and is made of birch-wood; it is pointed at the end, runs on a kind of wide keel, and resembles a coffin in shape. It travels with incredible swiftness over the snow. Another sledge, but covered in at the top, and still more like a coffin than the other, is used for conveying the baggage, such as the tent and cooking utensils. When travelling, two circular boxes, in shape like large tambourines, are slung across the back of the reindeer that draws the second sledge, and are employed in the conveyance of the smaller articles, such as the drinking-cups, spoons, and other small things.

When a colony of Lapps is moving from place to place, their numerous sledges have a rather pretty effect. This is especially the case when a number of sledges, drawn by reindeer, are passing over a broad sheet of frozen water. The sledges; the reindeer, with their scarlet and black trappings; the Lapps, with their wives and children; and the numbers of dogs running at the top of their speed,—render the sight a most novel and interesting one.

The tame reindeer is by no means of an amiable disposition. It is by nature vicious, and, when drawing

the sledge, the Lapp driver has but little control over it; it often becomes restive, stands suddenly still, and kicks out behind. Then it will occasionally stop when running at full speed, turn round, and coolly attack its driver with its horns. In this predicament, the Lapp turns the sledge completely over, and gets underneath; the reindeer then pokes away at the sledge with its horns, but injures itself more than its master. When the vicious brute has expended its wrath in this manner, and ceases its attack on the sledge, the Lapp quietly emerges, sets the sledge on its keel again, seizes the reins once more, and continues his journey as if nothing unusual had happened. If the reindeer is too quick in its attack, the Lapp has to depend for safety on his thick fur coats, which cannot be penetrated easily by the deer's horns, as, in order to prevent accidents of the kind, they are filed at their points. Like the wild reindeer, the tame species has many enemies, and numbers fall victims to the bear, the wolf, and the glutton. The tame reindeer is neither so bold nor so powerful an animal as the wild, and when attacked by beasts of prey it makes but little resistance. The tame reindeer feeds principally on various kinds of lichens, and is driven to the fjelds in summer, to search for them. In winter, it finds the same kind of food under the snow, when its frontal horns are very useful in scraping away the snow from the places where the lichens grow. When out grazing on the fjelds, the reindeer are prevented from wandering too far by men who are regularly employed to watch them, and who are assisted in their labours by dogs. Some Lapps have as many as forty dogs to keep the reindeer together, and to drive them

home to be milked. These animals are as sagacious as English sheep-dogs, and can distinguish their respective charges by some instinctive recognition of their faces. The Lapp is neither kind nor gentle to his dogs, but keeps them in a state of semi-starvation; they have to depend for their food on the bones of the reindeer that are thrown to them, or to the licking out of the pots as they lie round the Lapp's tent. A grim joke is extant in Norway, to the effect that the Lapp is too lazy to clean his pots and pans, so he keeps his dogs hungry to do it for him.

A reindeer cheese is a particularly nasty-looking article of food. It is flat and round like a huge muffin. Its flavour is very little better than its look. It is said that the oil extracted from a reindeer cheese by holding it before a bright fire is, if applied to the affected part, a sure and safe remedy for the cure of frost-bite.

The Lapps are extremely superstitious, and all outward signs are closely observed among them as omens of good or evil fortune: the stars, the appearance of the clouds, the rising of the moon, the flight of birds in small or large numbers, the falling of the leaves in autumn with unusual rustling, are eagerly scanned and watched. It is considered very unlucky to spill milk; and if a stranger, sojourning among the Lapps, should do this, the little people will dance about, tear their hair, grin diabolically, and not be satisfied until the head of the family has covered the spilled milk with earth, then scooped it up in his hand, and scattered it, outside the tent, to the winds of heaven.

The Lapps are very hospitable to strangers, although suspicious of them at first. They will give the passing

traveller the best of everything they have; and a small present of tobacco, or a little brandy, is cheerfully accepted as ample recompense. When residing among them, the food is the most trying part of the affair, for one soon tires of reindeer venison. Breakfast among this primitive people consists of reindeer milk, to which all help themselves out of the same pot, and generally with the same spoon. The dinner consists of reindeer venison and soup; at the supper, reindeer cheese is served out. When the meal is ready, the master of the household takes his place near the huge copper pan in which the reindeer venison and soup are cooked; the wife, children, and servants range themselves in a row, waiting to begin. The head of the family then gravely sticks his fork into a piece of venison, drags it out, and begins to eat it. The others do the same, and the only respect paid to the master is this: when a servant hooks out a piece of venison that is particularly fat and inviting, he puts it into the pot again, giving his master a grin as he does so, as much as to say, "That belongs by right to you, O master!" When this is done, the master gives a grunt of satisfaction, and complacently sticks his fork into the reserved morsel of venison.

Reindeer venison from the tame animal is juicy and well-flavoured; it is not held so much in esteem, however, as that from the wild. Reindeer milk is extremely indigestible for those who are unaccustomed to it.

The Lapps have a peculiar way of slaughtering their tame reindeer; a sharp knife is thrust into the back of the animal's head, which divides the spinal marrow from the brain, and an instantaneous death, without

pain, is the result. Immediately the reindeer falls down dead, the knife is thrust into the heart, and thus the blood is found in the stomach.

Some Lapps are rich, and possess from one to two thousand head of tame reindeer. I have heard of one wealthy Lapp who is the owner of ten thousand reindeer. This individual differs in no respect from his fellows; he dresses in the same manner, leads the same hard life of toil that they do, and bears no outward signs of riches.

The food of the Lapps is nearly always the same. Tea is quite unknown among them; sometimes, but not often, they get inferior coffee, and occasionally *flädbrod*, or flat barley-cakes. Reindeer venison and soup are what they chiefly depend on for their subsistence, as well as the milk of the animal. Sometimes they catch and eat fish, especially salt-water fish, when they are near the seacoast. They drink a great deal of *finkel*, a very strong spirit, which almost takes away the breath of those who taste it for the first time; it is distilled from corn or potatoes, and is flavoured with caraway seeds. These little people appear to thrive, however, on their peculiar diet, and live to a good old age.

CHAPTER XIII.

The Birds of Norway.

Notes on the Birds of Norway.—The Eagles.—The Hawks, etc.

Little has been written concerning the birds of this country. Pontoppidan published a rambling account of some of the birds of his own land, but it is so garnished with the marvellous, and the worthy bishop was so credulous in believing the most improbable stories, that little reliance can be placed in his remarks. Nilsson, the eminent Swedish naturalist, has made certain allusions to the birds of Norway in his 'Scandinavinsk Fauna,' but he wrote especially of Sweden, and his remarks concerning the feathered tribes of the sister country are "like angels' visits, few and far between." Professor Rasch, of the University of Christiania, has published a detailed list of Norwegian birds, in a magazine that is published monthly at Christiania, but it gives but a meagre account of the habits, or anything else, of even the most rare birds of his country. The fact is, literary men in Norway have the will, but not the means, to publish scientific works. Your true Norseman reads eagerly the works of Danish authors, he puzzles his brains over Shakespeare,

he does not disdain to glance at French novels, he devours all the works of German play-writers, but he does not honour the prophets of his own country. If a Norwegian literary man were to publish a work on any scientific subject, it would come forth stillborn from the press; perhaps an exception should be made in favour of the late Professor Munch, who published many volumes on the history of Norway. His works had a certain success, but not in comparison to the learning and research displayed in them. It is surprising that the learned men of Norway do not come forward, as they ought, to relieve their country of the deserved stigma of not encouraging literature, but so it is. I once asked the most accomplished naturalist in Norway what was the reason that he did not publish a work on the natural history of his own country. "Because it would not pay," was his reply; "my countrymen would not buy it."—"But," I ventured gently to inquire, "do you think such a work would be useful? Besides, there is the honour of the thing." The learned Professor shrugged his shoulders, and smiled; he evidently considered me a man of a very sentimental turn of mind.

The birds of prey of this country are very numerous; but as a certain sum of money is paid by the *foged,* or sheriff of a district, for the head of every eagle, hawk, or owl that is brought to him, an indiscriminate slaughter of such birds is carried on by the Norwegian peasants.

The various species of woodpeckers are common in all parts of Norway where woods abound; these woods contain vast numbers of coleopteric insects on which the "Picidæ" feed.

Many tropical birds visit Norway during the brief but hot summer ; they confine themselves, however, to the southern parts of this country. It is difficult for travellers to purchase specimens of rare birds in this country, for anything in the shape of fish, flesh, or fowl, that comes into the possession of the Norwegian peasant, finds its way into his capacious pot. He is also naturally a man of a suspicious disposition, and would rather make sure of a few pence for the head of a hawk from the *foged* than reserve the bird for a stranger's purchase. The song of birds is heard in all parts of Norway during the summer months. Most song-birds, however, migrate early to warmer climes.

The Norwegians have a benevolent custom of erecting a sheaf of corn on a pole, during the severe winter, for the special benefit of small birds ; this is generally done late in the autumn, and is considered a time of rejoicing. The children have a feast on the occasion, and are thus taught early that they should be kind to dumb creatures. In towns the sheaf of corn is generally placed outside the windows of the houses.

The classification of Nilsson is principally adopted in the following notes on the ornithology of Norway.

The golden eagle (*Aquila chrysaëtos*). This noble bird is found in different parts of Norway. It is often seen in Norwegian Lapland. It returns to the same eyrie year after year, haunting some large river, inland lake, or the neighbourhood of some mighty waterfall. Although it lays two eggs, it has seldom more than a single eaglet, to whom the strictest attention is paid, until it is able to leave the nest and shift for itself. It changes the colour of its plumage in Norway, and

that to so great an extent, that Norwegian naturalists have often mistaken the old birds for a distinct species. The last authenticated instance of a golden eagle carrying off a child took place in Thelemarken towards the end of the last century. A poor Norwegian peasant woman was washing her clothes near the door of her cottage, her infant, a fine boy, being in a cradle by her side, when an eagle stooped, and carried off the child to its nest in an inaccessible cliff at no great distance. Some days afterwards a Norwegian sailor, who happened to visit the place, scaled the cliff, but found nothing more than the bare bones of the child in the eagle's nest.

The cinereous or sea-eagle (*Aquila albicilla*) may be said to have its home on the north-west coast of Norway. It is frequently seen in the neighbourhood of Bergen, Throndjem, and Christiansund; sometimes it may be seen hovering over extensive inland lakes and large rivers at no great distance from the sea-coast. A Norwegian clergyman once shot a fine young bird of this species in Sæterdalen, more than fifty miles inland, which had a fresh mackerel in its stomach. Some years since a sea-eagle's nest was discovered by an English traveller on the coast of Finmark; the peasants in the neighbourhood declared that the same eyrie had been used by eagles for forty consecutive years. The eagles had carried off several lambs and kids the preceding summer, as food for their young. The nest was formed of twigs of the birch and mountain-ash, and was lined with hay and feathers, among which were some of the eider duck; a half-fledged eaglet was found in the nest.

The sea-eagle feeds almost entirely on fish, although

it does not disdain a lamb or kid, when storms render its favourite food scarce. Sometimes, when this bird pounces on a large fish, it catches itself by its claws, and is carried under water and drowned. The skeleton of a sea-eagle was once found on the body of a porpoise that was caught near Christiansund.

The valley of Sæterdalen, alluded to above, is thirty miles in length, and is celebrated in Norway for the primitive custom of its people. The winter here is often so severe that it hinders the crops from being gathered in, and frequently destroys them, when the poor suffer great privation. It is in this district that pine-bark is often ground with the barley-meal to eke out the scanty provisions. The fact of the pine-bark being thus used in seasons of distress, has caused a statement to be circulated that some poor people in Norway live on it instead of bread. This is a popular error, for human life could not be sustained for any length of time on the bark of the pine alone. The destruction of the harvest in some parts of Sæterdalen has occasionally driven the starving people into the neighbouring district of Thelemarken, where, so report states, they have not always met with a welcome reception. Perhaps this irruption happens too often to be pleasant. The inhabitants of Sæterdalen are primitive in their dress, manners, and language. Their dialect is peculiar, and they speak a language much less harsh than the ancient Norse, and which is said in some respects to resemble English. The women wear a singular garment, called a "tjeld," which is said to be like a Scotch plaid, so that some even affirm that they are of Scotch extraction. The peasantry live among their high mountains, forgetting and forgotten

by the world. They are a happy and contented race, and have few cares, unless Providence afflicts them with a scarcity. They are singularly dirty in their habits, and never dream of the luxuries of life, so that if the traveller wishes to see the fine scenery of the country, he must make up his mind to rough it, and should provide himself with almost everything that the wayfarer requires for food in the wilderness.

Pine-knots are burnt instead of candles in this part, the roots or lower parts of the pine being used, where the combustible matter has settled. These pine-knots are stuck into the wall, and give a brilliant light; but they burn very quickly, and require, therefore, to be frequently replaced. The peasants on the coast burn oil, which they extract from the dolphin and other oleaginous kinds of fish.

The osprey (*Pandion haliaëtos*) is common in all parts of Norway; it is often seen near the North Cape, and on the Varangerfjord, in East Finmark. I have frequently observed it on the fjord near Christiania. Its Norwegian name is *fisk-örn*, or fish-eagle. It feeds entirely on fish, and, like the sea-eagle, it often boldly attacks a large fish, which is more than a match for it, when the hapless bird is overpowered and drowned. Sometimes two ospreys attack the same fish, when a battle royal takes place between them for the possession of the prize. It nests in this country on lofty pines.

The gyrfalcon (*Falco gyrfalco*) is common in Finmark; its nest is often found on Magerö, near the North Cape. This fine bird was formerly very common in Iceland, whence great numbers were annually sent to Copenhagen, for the use of the royal falconry

there. In those days hawking was a royal pastime, and men travelled throughout Sweden and Norway to buy up all the young falcons. The old birds were often purchased as well, and were trained with a little extra trouble. The *Gyrfalco candicans* occasionally finds its way to Finmark from Greenland. A beautiful specimen of this variety which I have seen in Norway has the whole plumage snow-white, evenly marked on the back, wings, and tail, with pale cinnamon; the legs, bill, and sere, brilliant yellow.

The peregrine falcon (*Falco peregrinus*) is common in Nordland and Norwegian Lapland. It migrates late in the autumn, when it is often seen in the neighbourhood of Christiania. In Norway this bird often builds its nest on a lofty pine.

The Hobby (*Falco subbuteo*) is rather common in the south of Norway. It avoids the extreme north, and is never seen further up than Throndjem, and but seldom there. Its Norwegian name is *lærkefalk*, or lark-falcon. Migrates.

The merlin (*Falco æsalon*) is to be met with in the middle of summer only in the south of Norway. It was formerly used in this country to hunt snipes, larks, and other small birds. It is still trained in Egypt to hunt quails. In England it usually nests on the ground, but in Norway its nest is commonly built on trees. It lays from three to five eggs of a ferruginous-yellow colour, marked with dark brown spots. It migrates from Norway in the middle of August.

The kestrel (*Falco tinnunculus*) is common all over this country except within the Polar Circle, where it is never found. It is called here *taarn falk*, or tower falcon, because it nests in ancient ruins, or in towers. Migrates.

The sparrow-hawk (*Falco nisus*) is common in all parts of Norway excepting the north of Finmark; it builds its nest in a lofty pine, and begins to sit in the beginning of June. Only partially migrates.

The goshawk (*Astur palumbarius*). This noble bird is common enough in the central and southern parts of this country. It is often seen in the neighbourhood of Christiania. Its partiality for chickens causes it to be called in Norway *hönse-tyv*, or hen-thief. It generally builds its nest here in a spruce-fir, and lays from three to four pale-blue eggs. Migrates.

The kite (*Milvius vulgaris*) is seen in the early spring in the vicinity of Christiania. As the season advances, it leaves for the west coast of Norway, where it is said to feed on the refuse of dead herrings, which lie about the sands on the seacoast. At that time of the year the herring fishery is in full operation, and large quantities of the entrails of the herrings are flung away by the fishermen. This bird migrates early in October.

CHAPTER XIV.

The Buzzards.—The Owls.

The common buzzard (*Buteo vulgaris*) ; common in all parts of Norway. It nests here in a beech or spruce-fir. It only partially migrates.

The rough-legged buzzard (*Buteo lagopus*) appears to confine itself to the extreme north, being often seen in the vicinity of the North Cape. It visits Christiania in spring and autumn, on its passage to and return from the far north. It breeds among the fjelds in Finmark, and makes its nest on trees, or on the summits of large rocks. A nest of this species was once found in this country on a lofty pine, and its materials formed a bundle, three feet and a half in circumference. This bird feeds greedily on the lemming, which it finds among the northern fjelds.

The honey buzzard (*Pernis apivorus*) is a rare bird in Norway. I have seen it near Christiania, and also at Eidsvold, near Lake Mjösen, about forty English miles from Christiania. Two half-fledged birds of this species may be seen in the Zoological Museum at Christiania. They were taken out of a nest in the be-

ginning of May, at a place a few English miles distant from Christiania. Eidsvold, mentioned above, is the place where the ancient "Thing," or Parliament, was held. Here, also, in 1814 was drawn up the present Norwegian "grund-lov," or constitution, which has worked very well up to the present time, and has given to the hardy Norsemen more liberty than is enjoyed by any other nation, the English only excepted. Near Eidsvold flows the Vormen river, which connects Lake Mjösen with the river Glommen. To Eidsvold-bakken comes the timber from Hedemarken, Thoten, and southern Gudbrandsdalen, whence it is now conveyed from Eidsvold to Christiania by the railway, to be stored and sent afterwards to other countries. At Lille Strommens, on this line of railway, is a station for a junction line leading to Kongsvinger, celebrated for its beautiful scenery. In its vicinity is a castle, the scene of two engagements which occurred between the Norwegians and Swedes in 1808 and 1814, when, according to Norwegian accounts, the Swedes suffered a defeat on both occasions. By a singular coincidence the Swedes were commanded at both battles by the same luckless general.

Lake Mjösen, the largest inland sea in Norway, is situated in the neighbourhood of Eidsvold. It is about sixty English miles in length by about seven in breadth. It is said to resemble Lake Como in Italy. Good grayling-fishing may be had at Minde and near Eidsvold, at either end of the lake. There is also good wildfowl shooting on some parts of the lake.

The hen harrier (*Circus cyaneus*) is frequently seen in summer in Finmark ; when migrating in autumn to warmer climes, it visits Christiania. "At a dis-

tance," says Nilsson, "the male of this species resembles the common gull." It certainly does so in flight and colour, but not in shape. The ash-coloured harrier (*Circus cineraceus*) is as scarce in Norway as it is in England; it has been seen, perhaps, twice or thrice here. The marsh harrier (*Circus rufus*) is also a very rare bird here. Two fine specimens, both killed in Norway, may be seen in the Zoological Museum at Christiania. They are rufous-brown in colour; the tarsi and toes are yellow, tinged with green. The "Strigidæ" are more common in Norway than in any other country in Europe. In fact, one or two species appear to confine themselves especially to Norwegian Lapland. It is not surprising that a people so superstitious as the Norwegian *bönder*, or peasants, should have many marvellous stories to relate, and should entertain many strange fancies, concerning the bird which has been dedicated to Minerva. Thus it is said in country districts here, that if a person hears the hooting of an owl at night, he will soon be dead; if a person comes across an owl in the day-time, it is a sign of very bad luck. On this account the unfortunate owl is sadly persecuted in this country; and if one of the larger species should be spied in the twilight, sitting on an old tree or perched on a ruin, the superstitious *bonde* will run away as fast as his legs will carry him, to tell his friends that he has seen something worse than a ghost.

The gray or Lapland owl (*Strix Lapponica*, Retz).—This beautiful owl is occasionally seen in all parts of Norway, but its home is in Norwegian Lapland. It resorts to the northern fjelds in summer, where it flies high above the regions of perpetual snow, seeking its

prey by day as well as by night. It preys on lemmings and rats. When the lemmings migrate, the gray owl follows in pursuit of them, and specimens may then be procured by naturalists in the south of Norway. The ground colour of this handsome owl is gray, marked on the back, wings, and under parts, with brownish-black; beak short; irides bright yellow; the facial feathers are fine and soft, pale gray in colour, and each feather is tipped with blackish-gray; its length is at least two feet six inches.

A few years since, a *bonde*, walking through a wood near Christiania, saw a Lapland owl perched on a tree. The poor fellow was scared at the sight, and thinking "discretion the better part of valour," he made off as fast as possible; meeting some companions, he described to them the extraordinary monster he had just beheld. Their curiosity getting the better of their fears, they procured a rusty musket or two, and repairing to the wood, killed the owl. It was afterwards sold to a private gentleman at Christiania for a specie dollar, but the keeper of the museum in the town hearing of it, claimed the bird; for it is illegal in Norway to sell any rare bird to a private individual, it must be placed in the public museum of the place. This owl was kept for some time in the Zoological Museum at Christiania; it is now to be seen in the Royal Museum at Bergen. This rare owl is to be seen in the British Museum. A Norwegian naturalist informs me that he has seen a specimen in the museum of a town in Norfolk; I rather think it must be at Lynn. An English traveller that I met in Norway informed me that a specimen of the Lapland gray owl was to be found in the museum at Oxford. I have searched for it there in vain.

The snowy owl (*Strix nyctea*) is also common beyond the Polar Circle. It visits in summer the northern fjelds. During very severe winters it comes south, and has been seen in numbers near Christiania, Christiansand, and other towns. Mr. Lloyd states that he once saw a number of snowy owls on the Hardanger fjelds at noonday. It feeds principally on lemmings; but when they are scarce, it kills hares, rats, and mice.

The eagle-owl (*Strix bubo*) is seen in the western fjelds of Norway, near Christiania, and also in Finmark. Its nest has been found close to Lake Mjösen. A pair of owlets that I saw taken out of this nest were the most singular-looking little creatures imaginable; they were covered with a rufous-brown down, which was as long and as coarse as horsehair; they were about half the size of the adult bird, and had terribly sharp claws. A pair of adult birds were shot near Christiania some time since under rather singular circumstances. A boy, the son of a peasant, saw the owls, but his gun was only charged with powder, and he had no shot. "Necessity is," however, "the mother of invention," and the lad's wits were, no doubt, sharpened at the anticipated payment, *pengestykke*, he would receive from the *foged* for the heads of the owls, so a handful of gravel did instead of lead, and both the owls were killed. They are now in the Zoological Museum at Christiania. A Norwegian friend of the author kept a pair of young eagle-owls for some time in confinement; they were placed in a darkened room, and were fed on raw meat, entrails of fish, etc. They hissed and made a snapping noise when any person approached them.

The tawny owl (*Strix aluco*). Common in most parts of Norway, where it is called the *kat-ugle*, or cat-owl. Pontoppidan speaking of it says, "This owl's head is more like a cat's than a bird's. The female lays two eggs, and if one changes them for hens' eggs the owl will hatch the eggs, but will eat the young ones as soon as she perceives they are not her own. This owl fights with the cat, and they do not leave off until one is killed, so that their rivalry is not abated by their resembling each other. This circumstance reminds me of the Norsk saying, "Frende er frende værst," or, "Relations are the worst friends."

This owl in Norway frequents the shady recesses of the forest, where it builds its nest on the highest pines. Partially migrates.

The long-eared owl (*Otus vulgaris*, Fleming) is found in all parts of this country, excepting in Nordland and Finmark. It keeps to woods of deciduous trees, in which it makes its nest, and often takes forcible possession of the nests of the crow and wood-pigeon. Partially migrates.

The short-eared owl (*Strix brachyotus*). Even more common in Norway than the preceding species. In summer it is found among the fjelds of Norwegian Lapland, where it nests in the rushes on marshy ground. Its cry is said to resemble the barking of a dog. Migrates.

The Ural owl (*S. Uralensis*, Pallas) is only found in Finmark or Norwegian Lapland. Its colour is white, spangled on the back and wings with brown; the under surface of the body is white, pencilled very evenly with pale brown; tail white, barred with blackish-brown. Length twenty-five inches.

The hawk owl (*S. funerea*) is seen in the neighbourhood of Christiania in spring and autumn, no doubt when it is migrating from the north.

The barn owl (*S. flammea*). This owl, so common in England, has been supposed to be unknown in Sweden and Norway. Mr. Lloyd states that it has no right to a place among the birds of Scandinavia, "for the single specimen seen, and on the strength of which Nilsson has included it in his fauna, was not in reality secured in the peninsula, but on the mast of a ship off the coast." This owl is, no doubt, a *rara avis* in Norway, but I have seen an adult bird, which was taken out of a nest in the parish of Bærum, about seven English miles from Christiania. An English friend in Norway also informs me that he once captured a pair of barn owls, male and female, near Lake Mjösen.

The sparrow owl (*Noctua passerina*). This small species is rather common in Norway, although it does not venture within the Polar Circle. It is a most determined and courageous little creature, especially when it is considered that it is not more than five or six inches in length. It is called here the *spurv-ugle*, or sparrow owl. It preys constantly on small birds, such as sparrows, greenfinches, etc., but occasionally falls a victim to their combined attack. A number of sparrows, chaffinches, and other small birds, will join together and attack this diminutive owl; union then is strength, and the little owl succumbs to his numerous foes. He dies game, however, and kills numbers of his adversaries before he himself bites the dust. This pigmy owl is pale brown, spotted with white on the upper parts of the body; the under surface is nearly white; eyes small, sharp, and piercing; claws

long and very sharp. It feeds by day on small birds, young rats, and mice.

Tengmalm's owl is occasionally seen in Norway, and generally in Finmark during the summer months, whence it migrates late in the autumn. Its colour is pale brown, marked with pearl-like spots, on account of which it is called in Sweden *perl-uggla*, or pearl owl. Length about eight inches. It preys by night on rats, mice, and Coleoptera.

CHAPTER XV.

The Woodpeckers.—The Cuckoo.—The Wryneck.—The Wren.—The Crow.—The Jay.—The Nutcracker.—The Night-jar.—The Bohemian Waxwing.—The Garrulous Roller.—The Swallow.—The Starling.—The Shrike.

NORWAY is a country of contrasts, and a stranger to its wild and romantic scenery would hardly suppose that its feathered tribes are so numerous. Here the naturalist will find a constant source of instruction and amusement. I once asked an eminent Norwegian naturalist to explain to me the reason why the "Picidæ" were so much more common in Norway than in England. "Your inquiry is very easily answered," was the reply; "your country is thickly populated; it is overrun with railways; you make the most of your land, and you have but few forests, in which those birds which delight in silence and solitude can conceal themselves. Again, the Coleoptera are very common in our woods, and, as you are well aware, woodpeckers are very partial to them; while in England you clear your woods, and beetles and such-like insects are scarce, and so, consequently, are this species of birds."

"What number of Coleoptera do you think there

are in Norway?—I mean, of course, the different kinds of them," I asked.

"Well, I can hardly answer that question correctly," was the learned professor's answer; "I have so far discovered no less than 1700 different kinds, but there are a great many more, and I hope one day to be able to classify them."

I hinted that I should like to get the list from him, to publish it in England; but Norwegian literary men are very jealous of aiding the literary men of other countries, and my Norwegian friend vouchsafed no encouragement to the gentle hint I gave him.

The great black woodpecker (*Picus martius*) is common among the hilly forests and woods of Norway. The peasants have given it the name of *Gertrud's-fugl*, or Gertrude's bird, connecting it with the following legend:—Once upon a time, of course very long ago, our Saviour called on an old woman who lived all alone by herself in a little cottage in an extensive forest in Norway. Her name was Gertrude, and she was a hard avaricious old creature, who had not a kind word for anybody; and although she was not badly off in a worldly point of view, she was too stingy and selfish to assist the poor wayfarer who passed by chance her cottage-door. One day, our blessed Lord happened to come by that way, and, being hungry and thirsty, he asked of Gertrude a morsel of bread to eat and a cup of cold water to drink. But no; the wicked old woman refused, and turned our Saviour from the door with revilings and curses. Our Lord stretched forth his hand towards the aged crone, and, as a punishment, she was immediately transformed into a black woodpecker. The wicked old creature has ever since

wandered about the world in the shape of a bird, seeking her daily food from wood to wood, and from tree to tree. The red patch on the woodpecker's poll is supposed to be typical of the red nightcap that Gertrude always wore on her head. The Norwegian peasants are very much afraid of this bird, and give it a wide berth if they come across it in the woods.

The green woodpecker (*Picus viridis*) is pretty common in Norway as far north as Nordland. When the peasants hear the cry of the *grönspet*, as they call this bird, they say it is a sign of coming rain; in fact, they even declare that the green woodpecker foretells the approach of rainy weather several days before it comes.

The gray-headed green woodpecker (*P. canus* or *P. viridis Norwegicus*), called in Norway *lille grönspet*, or little green woodpecker. It is smaller in size than the preceding species; its head is gray tinged with black, and with a red mark; back green; tail black; under parts gray. It is rather a rare bird in this country, but is frequently seen in the environs of Christiania in autumn and winter.

The white-backed woodpecker (*P. leuconotus*), called in Norway *hvid-rygget*, or white-backed. It is often seen during the summer months in Hedemarken and Gudbrandsdalen; the contrast between the black, white, and pink colours of this bird, give it a very pretty appearance.

The great spotted woodpecker (*P. major*) is to be found in Norwegian Lapland. It is said in Norway that this bird opens the pine cones with its beak, to get at the seeds; the female sits very closely on her eggs.

The lesser-spotted woodpecker (*P. minor*) also frequents Norwegian Lapland.

The three-toed woodpecker (*P. tridactylus*) is called in Norway *tretaaet*, and is pretty common all over the country. In summer it resorts to the woods of the higher fjelds in the north, where it feeds on the spines of the spruce-fir, on larvæ, etc.

The cuckoo (*Cuculus canorus*) visits Norway by about the beginning of May. It is even seen near the North Cape, and up among the highest mountains of the Dovre-fjeld, amidst the regions of perpetual snow; the old birds migrate about the end of July, but the younger ones remain a month later. The Norwegian name *gjög*, somewhat resembles the appellation "gowk," which this bird receives in country districts in England.

The wryneck (*Junx torquilla*) is pretty common in all parts of Norway, even in Finmark.

The kingfisher (*Alcedo ispida*) is sometimes met with on the fjord, near Christiania, and by Arendal and other towns on the south coast of Norway. It is, however, very wild, and never comes within range.

The bee-eater (*Merops apiaster*) is only occasionally seen in the south of Norway; the same may be said of the hoopoe (*Upupa epops*). The creeper (*Certhia familiaris*) is by no means common, and does not visit the far north. The nuthatch (*Sitta Europæa*) is only a rare visitor to Norway.

The wren (*Troglodytes vulgaris*).—This little creature is common in Norway. In summer it is often seen in Finmark. It does not migrate from this country in winter, but leaves the north for the south. It is welcomed by the Norwegian peasants as a little friend, and is familiarly called Tommy-round-the-house, for it

becomes very tame, and often hops inside the peasant's cottage. The following story is related in Norway concerning the wren:—"The birds once upon a time assembled to elect a king, when, after a good deal of discussion, it was decided that the bird that could fly the highest should be the chosen sovereign of all. The eagle, of course, winged the highest flight, and claimed the sovereignty; when the little wren cried out, 'Not so; I stood on the eagle's head, and, therefore, as I ascended higher than he did, I am your king.' The claim was allowed by the birds, and the wren was duly elected; but the eagle was so exasperated at the decision that he caught up the wren in a rage, flew up high in the air with his pigmy rival in his claws, and dropped him to the ground! The wren was more frightened than hurt, but he lost part of his tail in the fall, and has ever since gone about with only half of that necessary appendage. Moral:—Proud and ambitious people sometimes meet with an unexpected downfall."

The "Corvidæ" may be said to be common in Norway.

The raven (*Corvus coraæ*) is to be seen in various parts of this country, and is often to be met with in Finmark. It destroys much feathered game here, such as the *hjerper, ryper,* etc. In winter it visits the sea-coast, and feeds on fish. It pairs while the snow is on the ground, and makes its nest in lofty pines, where it lays from three to five greenish-coloured eggs, marked with brown spots.

The hooded crow (*C. cornix*) is also common in Norwegian Lapland, where it breeds. Its food there

consists of mussels, which grow to an incredibly large size. The severe climate of the north often makes this bird cream-white in colour. The carrion-crow (*C. corone*) has been once seen in Norway; the specimen was shot, and is now in the Zoological Museum at Christiania.

The rook (*C. frugilegus*) is rarely to be met with in Norway, and never north of Throndjem. It migrates in October, and returns early in the spring, but does not make its nest until the beginning of June.

The jackdaw (*C. monedula*) remains during the summer in Norwegian Lapland. Speaking of this species, Mr. Lloyd says, "More generally it breeds in towers and old buildings, but in the far north, from the want of such-like localities, it nests in the wilds of the forest."

The magpie (*Pica caudata*) is common in all parts of Norway. It is a special favourite among the peasants, who would not harm it on any consideration. The Lapps esteem it highly, and do their best to entice it about their tents. During the long and wearisome winter of Norway, the magpie is to the Norwegian *bönder* what the redbreast is to the country people of England. This bird is allowed to come into the peasant's cottage; it is regularly fed, and if any mischievous person were to molest it, he would bring down a storm about his ears which he would not forget in a hurry. In country districts here, the people put hens' eggs under the magpie, and consider the chickens hatched in such a way will be prolific layers. When this is done, the magpie is carefully watched at hatching time, and the chickens are removed as soon as they come out of their shells, otherwise the magpie would

devour them. White magpies are occasionally seen in Norway, the effect, probably, of the severe climate.

The common jay (*Corvus glandarius*) is common enough in the Norwegian woods, but does not venture north of Throndjem. It makes its nest here in spruce-firs.

The Siberian jay (*Lanius infaustus*).—This species is common in Norwegian Lapland. It is sometimes seen in the vicinity of Christiania, and in the woods round Lake Mjösen. Swedish naturalists assert that it preys on small birds, and on feathered game that is caught in snares; it is also partial to rats and mice, and devours wild berries. It nests in a spruce-fir, and begins to sit early in April; the young are fully fledged by the beginning of June, and are then observed busily seeking their own food, which consists of insects and larvæ. The head of this bird is dark brown; throat and under parts, pale lavender; the upper parts and lateral tail feathers are red brown; the central tail feathers are pale lavender. It is a much more sprightly and neater bird than the common jay, although smaller in size.

The nutcracker (*Nucifraga caryocatactes*), called in Norway *nöddekraaken*, is seen in summer in the pine forests of the Bergen and Throndjem Stifts, or provinces. It comes to the woods round Christiania in autumn, when it is seen in flocks, feeding on acorns and beech-nuts; in winter it ferrets out nuts in the snow, cracks their kernels, and even eats their shells. Its powers of digestion must equal those of a Norwegian peasant, who can eat and digest almost anything.

The night-jar (*Caprimulgus Europæus*) visits Norway

by about the end of May, and migrates towards the end of August. In summer it is common in Finmark. Professor Rasch says that the flesh of this bird is extremely savoury.

The Bohemian waxwing (*Bombycilla garrula*) is common in Lapland or Finmark during the summer months. It does not appear to migrate, for I have frequently seen it near Christiania in the middle of winter; during that inclement season, however, it no doubt leaves the north of Norway for the south. A friend of mine at Christiania kept a bird of this species for a long time in confinement, for the sake of its beautiful plumage; its note was monotonous and uninteresting, and its habits were dirty. During the Norwegian winter this bird feeds entirely on wild berries.

The "Hirundinidæ" are common in all parts of Norway. The peasants are superstitious concerning them, and would not allow a swallow's nest to be destroyed on any account. Mr. Lloyd relates the following Swedish legend concerning the swallow:—"When our Saviour was crucified, a little bird came and perched upon the cross, peered sorrowfully down upon the sufferer, and twitted, '*Hugsvala, svala, svala, Honom,*' that is, 'Console, console, console Him,' and hence it obtained the name of *svala.*"

Many people in Sweden and Norway believe that the swallow hibernates instead of migrating. Pontoppidan asserts that hundreds of swallows were found amongst rushes in Norwegian lakes, in a semi-frozen state, and that when brought into a warm room they revived.

The sand-martin (*Hirundo riparia*) is very common on the banks of the Thana, a river which forms the boundary between Swedish and Norwegian Lapland.

The Swift is seen flying above the regions of perpetual snow in the fjelds, hence it is called here *fjeld-svala*, or mountain-swallow. The common swallow is very abundantly found in all parts of Norway, and even in the Loffoden Islands; the martin is also as common. Albino specimens of this species are often to be met with here.

The starling (*Sturnus vulgaris*) is common on the west coast of Norway. Albino specimens of this bird are rather common here.

The shrikes are not common in Norway, although they have been seen more frequently during the last few years. The Russians tame the great butcher-bird (*Lanius excubitor*), and keep it in a cage. The red-backed shrike (*Lanius collurio*) is only to be met with occasionally in the central and southern parts of Norway.

CHAPTER XVI.

The Song-birds of Norway.—The Wagtails.—The Titmice.—The Larks.—The Pipits.

THE "Sylviadæ," by which birds of sylvan habits and warblers are meant, are common in various parts of Norway; several of them are found during the summer months in Lapland. The song of birds is an unusually pleasant sound in this land of solitudes; and during the short Norwegian summer, when the sun does not set beneath the horizon, the birds appear to sing all the night through; the note of all singing-birds in this country, however, does not seem to be so sweet as in more southern climes. It may be added, that the song of birds is not heard here until very late in the spring, and very little in the autumn. The fact is, that nearly all the warblers migrate from Norway towards the end of August or very early in September.

The northern nightingale (*Sylvia luscinia*, Nilsson) arrives in the neighbourhood of Christiania in the middle of May, and migrates in the beginning of September; its Norwegian name is *nordlig nattergall*, or northern nightingale. It appears to be a different bird from the nightingale (*Philomela luscinia*) that

visits England. The following is Nilsson's description of the northern nightingale's song:—

"Tjun, tjun, tjun, tjun
Spi tui zqua
Tjō tjō tjō tjō tjō tjō tjō tix;
Qutio qutio qutio qutio
Zquō zquō zquō zquō
Tzy tzy tzy tzy tzy tzy tzy, tzy, tzy, tzi,
Quorrov tui zqua pipiquisi."

The northern nightingale rests in bushy thickets near the water, and lays from four to five yellow-brown eggs.

The blue-throated warbler (*Sylvia Suecica*).—This beautiful little bird is commonly found in summer in Nordland and Finmark, also in the Throndjem Amt, and in the Dovre-fjeld. It breeds in the far north. The throat and breast are metallic blue in colour, with a patch of bright red-brown on the latter. It makes its nest in bushes near the water, and sits in June on four or five pale green eggs.

The white-throat (*S. cinerea*) and the lesser white-throat (*Curruca sylviella*) are pretty common in central and southern Norway; they neither of them venture north of Throndjem. The latter species is called *mölleren*, or the miller, in this country, from its incessant *klapp, klapp*, which resembles the noise made by the little mill that is placed in cherry-trees to scare away birds.

The garden warbler (*Sylvia hortensis*) is called in Norway *havesanger*, or garden songster. It is found in all parts of the country, and its sweet note is often heard in the most dreary parts of Norwegian Lapland.

The black-cap (*Motacilla atricapilla*) is also com-

mon, and is dignified by being called *munken,* or the monk. It migrates from Finmark towards the end of August. The same may be said of the whinchat (*Saxicola rubetra*), and of the wheat-ear (*Saxicola œnanthe*). The latter is seen in the Dovre-fjeld, winging its flight, and singing above the regions of perpetual snow.

The robin (*Motacilla rubecula*) is common in Norway, but is seldom seen within the Polar Circle. It arrives in this country in the beginning of April, and migrates in the middle of September. Some few of the species are said to remain in Norway throughout the winter.

The redstart (*Lusciola phœnicura*) visits Norwegian Lapland; I once found its nest in an old garden wall near Christiania. It is called in Norway *rodstjœrt,* or red-tail.

The wood warbler (*Sylvia sibilatrix*) is pretty common in this country, but does not venture within the Polar Circle.

The willow warbler (*S. trochilus*) is common everywhere, even in Finmark. The chiffchaff (*S. hippolais*) is also to be met with in Finmark. The sedge-warbler (*Salicaria phragmitis*) is also common in Finmark; but the reed-warbler (*Sylvia arundinacea*) does not venture within the Polar Circle, although it is common in other parts of the country. The hedge-sparrow (*Accentor modularis*) is common in Norway, even in Norwegian Lapland. It arrives in this country as early as March, and migrates as late as the end of November. The Alpine accentor (*A. Alpinus*) does not visit Norway at all.

The gold-crested wren (*Regulus cristatus*) is called in Norway the "Bird-king," no doubt from its golden

crest. Its favourite resort here is the thickest part of the pine forests, and it is to be found wherever the pine grows; it has been seen near Christiania early in February. The fire-crested regulus (*Regulus ignicapillus*) has been seen once or twice in Norway.

The "Merulidæ" are pretty common in all parts of Norway.

The missel thrush (*Turdus viscivorus*) is occasionally seen in Finmark, and also in the Dovre-fjeld. Its Norwegian name is *due-trost*, or dove-thrush. It frequents the mountain forests here, where it finds an abundance of caterpillars, small grasshoppers, beetles, *et hoc genus omne*. In winter its food consists of wild berries, as the berries of the mountain-ash, and especially of the juniper. It makes its nest in pines.

The common thrush (*T. musicus*) is about as common in this country as the preceding. In Norway there is no darkness at all during the months of June, July, and August, when the song-thrush is heard singing throughout the night. This bird is sometimes called the Norsk nightingale here.

The redwing (*T. iliacus*) passes the summer in Finmark. In spring it is seen in flocks in the neighbourhood of Christiania, on its way to the north, and it is equally common in the same locality in the autumn, on its return when migrating. Albino specimens of this species are common in Norway. It generally makes its nest here in a birch.

The fieldfare (*T. pilaris*) is common in all parts, and is seen on Magerö, close to the North Cape. It makes its nest in a birch or spruce-fir, and begins to sit in June. Mr. Lloyd relates the following amusing story of a fieldfare:—"This bird is sometimes domes-

ticated in Scandinavia. Linnæus makes mention of one belonging to a publican in Stockholm that was allowed its full liberty, and was accustomed to sip wine out of the glasses of the guests, an indulgence that at length caused it to become quite bald. When at an after period, however, the great naturalist goes on to tell us, the bird was confined to a cage, and debarred access to wine, its poll was soon again replenished with feathers!"

The ring-ouzel (*Turdus torquatus*) visits Norwegian Lapland.

The blackbird (*T. merula*) is common here, but does not venture within the Polar Circle. In summer it sings in this country throughout the night.

The common dipper (*Cinclus aquaticus*) is common in the north of Norway, from whence it does not migrate. It breeds on the banks of the Thana river, in East Finmark. Its Norse name is *fosse-konge*, or king of the waterfall.

The "Motacillidæ" are pretty common in this country.

The white wagtail (*Motacilla alba*) is found everywhere here, even in East Finmark. In the early spring it is common in Christiania and the vicinity; in the streets, as well as in the open country, almost close to the feet of passengers, especially after rain, when it hops about, picking up the small insects which have been beaten down by the passing showers. It is also common on the quays, and round the ramparts of Agershus Castle, a fortress which protects Christiania on the side of the fjord.

The gray-headed wagtail (*M. neglecta*) is almost as

common in Norway as the preceding. Its favourite resort in summer appears to be by the sides of lakes in the fjelds.

The tomtits are common in all parts of Norway, and several of the species are to be found in Norwegian Lapland.

The great titmouse (*Parus major*) is called in Norway the *kjöd-meise*, or meat-tit; for it is so fond of meat that it hops about the door of the peasant's cottage, watching for an opportunity of getting into the pantry, *spiis-kammer*. It is frequently caught alive in a trap, like a mouse, which is placed near the aforesaid pantry for the purpose, and is baited with a bit of meat.

The cole titmouse (*P. ater*) is seen during the summer months in Finmark. It visits the neighbourhood of Christiania in winter, in the company of the golden-crested wren.

The crested titmouse (*P. cristatus*) is called in Norway the *top-meise*, or top-knot tit. It remains in the pine woods. It comes to the neighbourhood of Christiania in autumn, where it takes up its winter quarters. It nests in the hole of a pine, and lays from eight to ten white eggs, spotted with red.

The Siberian titmouse (*P. Sibiricus*) keeps to Norwegian Lapland in summer; in October it comes down to the central parts, and is then to be met with in Gudbrandsdal, Hallingdal, and Hedmarken. This species is very tame, and fearlessly comes close to human beings; it nests in the hole of a pine, and lays nine white eggs, marked with pale red spots. Hallingdal is one of Norway's most celebrated valleys. The peasantry of the district are peculiar in their habits; they are partial to dancing and fighting, two very

dissimilar amusements, but a taste for which is no doubt induced by strong animal spirits. The men are so nimble of foot, that when they dance the "Halling," they pirouette, give a sudden leap, and touch the ceiling with the right foot. When under the influence of drink, they gravely enter into amicable encounters, shake hands before commencing, after the manner of English pugilists, then draw their short knives (*tolkniv*), and cut and slash at each other in all directions; much wholesome blood-letting takes place, but a tragical termination of the affair seldom occurs. The traveller who has sufficient leisure on his hands will find a short stay in this district interesting; it is about one hundred English miles from Christiania.

The marsh titmouse (*P. palustris*) is not so common as some other species; it is, however, sparsely seen in Finmark. Albino specimens of this kind are often to be found in Norway.

The long-tailed titmouse (*P. caudatus*). — This pretty and graceful little bird is common in Norway, although it is said not to venture further north than Throndjem; it nests in the branches of trees, and surrounds the nest with the lichens which abound in this country. The bright and varied colours of the lichens, with the extraordinary size of the nest for so small a bird, fixed, as it is, to the branches of the tree, make it a pretty and remarkable little structure; it is wonderful, too, how the bird manages its long tail when it sits on its eggs. Nature is, however, ever kind to birds, and gives them ways and means wherewith we are unacquainted. This interesting little tit lays from twelve to fifteen white eggs, dotted with minute red spots.

The blue titmouse (*P. cæruleus*) is rather scarce in Norway, and is not found at all in Norwegian Lapland.

The larks are, perhaps, rather more common in certain localities here than they are in England. The skylark (*Alauda arvensis*) is found in Norwegian Lapland; it arrives in the south of Sweden as early as the beginning of January. I have seen a variety of this species in Norway which was black, tinged with red-brown. The crested lark (*A. cristata* of Linnæus) has been seen once or twice in Norway. The wood lark (*A. arborea*), called in this country *skov-lærke*, is only found in the central parts; it is rarely observed near Christiania. The shore lark (*A. alpestris*) is common in Finmark. A Norwegian naturalist informs me that it is seen in large numbers in the neighbourhood of Vadsö, east Finmark. It packs in the early autumn, and flocks of forty or fifty fly about together. It nests on the coast, selecting mossy places, and fits the nest so closely into the moss that it is not easily discovered. The eggs are four or five in number, and of a grayish colour, marked with blue and brown spots.

The pipits are rather more common in this country than they are in England.

The tree pipit (*Anthus arboreus*) is found in all woody districts in Norway; it is often seen near Tromsö, the principal town of Finmark.

The meadow pipit (*A. pratensis*) is found in summer among the fjelds of Finmark; it is very common near Christiania in spring and autumn. It arrives in May and migrates in October.

The rock pipit (*A. rupestris*) is common on the

banks of all the Norwegian fjords; it is a summer visitor to the North Cape and East Finmark.

Nilsson says that this bird is considered extremely useful by the fishermen of Sweden, as, when the water on the coast is low, it proceeds to the bare rocks, and destroys large numbers of small crabs (*Cancer pulex*), which are so injurious to the fishing-nets that they render them useless in a single night.

Richard's pipit (*Anthus Richardi*).—For the information of travelling naturalists, I may mention that a specimen of this species, shot near Frederickshald in Norway, may be seen in the Zoological Museum at Christiania.

CHAPTER XVII.

The Buntings.—The Finches.—The Crossbills.—The Pigeons.

Two or three species of bunting are common in this country, but are seldom seen in England.

The snow bunting is subject to varieties in colour, according to the season of the year. The Lapland bunting is common in Norway. The snow bunting (*Emberiza nivalis*) is common during the summer months in the northern fjelds of Norway. It is seen above the regions of perpetual snow; is called here the *snespurv*, or snow sparrow; it has its winter plumage in this country from October to March. The summer plumage of a bird shot in the Dovre-fjeld is snow-white, except the back, which is black; the contrast between the two colours gives the bird a remarkable appearance, and the separation of the black and white is as evenly marked as if it had been done with a compass. In the middle of winter there is a considerable tinge of red-brown on various parts of the plumage. It breeds among the highest fjelds, and makes its nest on the ground, in a place where there are stones lying about; it begins to sit towards the

end of May on five eggs, which are white in colour, marked towards the larger ends with brown and gray spots.

The Lapland bunting (*E. Lapponica*) is called the *Laplandsk-spurv*, or Lapland sparrow, in Norway; its colours are black, brown, and white, and across the nape of the neck, reaching round the breast, is a broad mark of brilliant red-brown. It migrates in the autumn, when it is said that it does not pass through Norway, but from Norwegian into Swedish Lapland, thence through Finland to the south of Russia. It breeds in the fjelds of Finmark, where it nests by a tuft of coarse grass, and on marshy ground; it lays five eggs, which are of a washy-yellow colour, marked with faint olive-brown spots.

The reed bunting (*E. schœniclus*) is called in Norway the *sivspurv*, or rush sparrow; it breeds in the northern fjelds on marshy ground, and in the vicinity of willow and birch; it nests among willows or bulrushes, and lays from four to five eggs of a pale red-brown colour, marked with purple-brown spots and streaks. The male bird sits on the eggs in his turn, and Swedish naturalists assert that the male always arrives in Scandinavia a fortnight before the female.

The common bunting (*E. miliaria*) is common in the south of Norway, where it remains throughout the winter; varieties of this species have been seen in Norway, white or white tinged with brown.

The ortolan bunting (*E. hortulana*) is common in the neighbourhood of Christiania from May to September, when it migrates.

The yellow-hammer (*E. citrinella*) is common in all parts of Norway, even in Norwegian Lapland. Does

not migrate. It lays five eggs, which are marked all over with black lines.

The Lesbian bunting (*Bruant mitilēne*, Temminck) has been seen in Finmark, but only occasionally.

The "Fringillidæ" are common in all parts of Norway, in the north as well as in the south.

The chaffinch (*Fringilla cælebs*) is found in the central and southern parts of this country. In autumn it assembles in flocks in the neighbourhood of Christiania, and then migrates.

The lesser redpole (*F. linaria*) is called in Norway the *rödkop*, and is common in summer in Norwegian Lapland; it is also said to be common in the western fjelds. During mild winters it is seen in flocks in the neighbourhood of Christiania. The mealy redpole of Yarrell is very rarely seen in Norway. A bird of this species was shot near Christiania, November 11th, 1862.

The siskin (*F. spinus*) is found as far north as Nordland; it breeds in the forests, and nests in spruce-firs; lays six eggs, which are grayish-white, marked with red-brown spots. It does not migrate.

The goldfinch (*F. carduelis*) is not so common here as some of the other finches; does not visit Norwegian Lapland. It generally nests in this country in a spruce-fir, and conceals its nest so craftily that it is not easily discovered.

The common linnet (*F. cannabina*) is common in all parts of Norway, except in Finmark. It remains throughout mild winters in the south. The male bird loses the red tinge during the winter.

The mountain linnet (*F. flavirostris*) visits Finmark

in summer, and comes to the neighbourhood of Christiania in autumn, where it takes up its winter quarters.

The brambling (*F. montifringilla*) is called in Norway the *bjerg-fink*, or mountain finch; it is very common during the summer months in the fjelds of Norwegian Lapland. Migrates.

The greenfinch (*F. chloris*) also breeds in Finmark. It only partially migrates.

The house sparrow (*F. domestica*) is as common in Norway as it is in England. In the streets of the towns, on the house-tops, along the quays of seaports, this familiar bird is to be met with; and even hopping about the Lapp's tent, which is pitched in one place to-day to be removed to another to-morrow. Sparrows congregate in all parts of the country, unmindful of the cold, and seem to be ubiquitous; in winter they depend almost entirely for their subsistence in this country on the sheaf of corn which is fixed to the top of a pole, and is erected near the homestead in country districts. Tidemand, the well-known Norwegian artist, has represented this scene in one of his pictures. It is Christmas-time, and the ground is covered with snow, which is deep and frozen hard. A group of peasants have gathered round the pole, with the sheaf of corn attached to it; the chubby peasant children, rosy in looks and strong in frame, have cakes in their hands, and are entering into the spirit of the scene with great glee. Sparrows and other small birds are flying about, ready to make a descent on the pole when the human creatures have departed.

The hedge sparrow is not so common in this country as the house sparrow; it does not visit the far north,

Albino varieties are often seen here, wholly or partially white.

The bullfinch (*Pyrrhula vulgaris*) is common in the woods round Christiania during the autumn and winter. In summer it keeps to the mountain wilds, but is said not to visit the extreme north. I have frequently seen varieties of this species here, called in Norsk *sort-varietet*, or black variety. They are soot-black in colour, tinged with red-brown. As these varieties are always procured in winter, the peculiar colour is, perhaps, caused by extreme cold. The bullfinch receives the name of *dom-pap* here. This appellation signifies a canon of the cathedral (*dom-kirke*), so called in Popish times for his melodious song, *stemme*, which resembled the voices of the canons as they chanted the "horas canonicas." In Norway the bullfinch is captured by means of horsehair snares, inside of which mountain-ash berries are placed, and when the bird inserts his head to get at the bait, the hair tightens round its neck, and it becomes a prisoner.

The hawfinch (*Coccothraustes vulgaris*) is common on the S.W. coast of Norway, where it feeds on the kernels of the wild cherries which grow abundantly on that coast. Large quantities of cherry-brandy (*kirse-bær-brændeviin*) are made there. The hawfinch opens the cherry-stones, *kirsebær-steen*, with its strong beak, and eats the contents. It is called in Norway the *kirsebær-fugl*, or cherry bird, and in Sweden the *sten-knöck*, or stone-breaker. It nests in a tree or under a bush in a pine wood; the nest is made of twigs and lichens, and contains six eggs, which are a pale olive-green, dotted with black, and streaked with dusky-gray.

The pine grosbeak (*Pyrrhula enucleator*) is found in the north of Norway. It is erratic in its habits, and is much more plentiful during some seasons than at others. It is a beautiful songster, and is easily tamed. It is called in Sweden *tallbit*, or fir-biter, and in Norway *fjeld-dompap*, or mountain bullfinch; it feeds on the seeds in the fir cones, which it opens with its strong beak; it keeps to pine woods, where it nests in a spruce-fir, at no distance from the ground; it lays three or four pale green eggs, marked with brown and gray spots.

The parrot crossbill (*Loxia pityopsittacus*) is pretty common in Norway, especially in the central and northern parts. It feeds on the seeds of the pine-cones, and on beech-nuts, etc. In winter it subsists almost entirely on the berries of the mountain-ash, which is very common in woods of deciduous trees in Norway. This bird is, also, uncertain in its habits, sometimes building its nest and sitting on its eggs as early as February, sometimes much later. The nest is generally made in a spruce-fir, and contains three or four eggs of a dirty-white colour, marked with brown spots. Mr. Lloyd gives the following account of the young of this species:—"When the young leave the nest they follow the mother, who feeds them; but at this period the male deserts the family; one never sees him in the company of a female that has newly-fledged young. When these accompany the mother, they keep up a terrible noise, screech most unmercifully, and flutter with their wings. When feeding the young, the female commonly allows the cone to fall on the ground, the young follow her to the cone, out of which she plucks the seeds and gives them, whilst

they, gaping and screeching, surround her on all sides." The Norwegian name of this species is *stor korsnœb*, or great crossbill.

The common crossbill (*L. curvirostra*) is called in this country *mindre korsnœb*, or lesser crossbill, and is not so common here as the preceding species. Its habits are very similar. It lays four grayish-white eggs, marked on different places with red and brown spots.

The white-winged crossbill (*L. bifasciata*, Nilsson). —This bird is but little known to Norwegian naturalists, and is but an occasional visitor to this country. The first known specimen in Sweden was shot near Stockholm in 1792, and may be seen in the Zoological Museum of that city; one was shot near Christiania in the autumn of 1840. The habits of this bird are very similar to that of the other crossbills; it is very uncertain in its ways, and does not generally stay long in one place; it remains almost always in the pine-woods, and is very tame; when the snow is on the ground, it will even let itself be captured by the hand. It builds its nest among the inner branches of a spruce-fir, and lays five eggs, which are white, spotted with yellow.

Of the "Columbidæ," the wood pigeon is the only species that is at all common in this country.

The wood pigeon (*Columba palumbus*) does not venture further north than the Nordre Throndjem Amt; it is common in Gudbrandsdalen, Hedemarken, and Hallingdal. It arrives in the south of Norway in the beginning of April, and migrates towards the end of September; its Norwegian name is *ringduen*, or ring-dove; it makes its nest in this country on fir-trees.

The stock dove (*C. œnas*) is by no means so common as the preceding. It does not venture further north than the Söndre Throndjem Amt. It nests here in the holes of trees, and arrives by the end of March, migrating in September. The young birds are fully fledged by the beginning of June. Called here *blaa-duen*, or blue-dove.

The rock dove (*C. livia*) is supposed, and with every appearance of reason, to be the origin of the domestic pigeon so commonly used nowadays at pigeon matches, under the name of "blue rock." Its breeding ground in this country is on the islands off the S.W. coast, near Stavanger, viz. Rennesö, Omö, Mosterö, etc.; there it makes its nest on the rocks and in the sides of the cliffs, and, occasionally, stray birds find their way over to the mainland. Its Norwegian name is *klippe-duen*, or rock-dove.

The turtle dove (*C. turtur*) is a very rare visitor to either Sweden or Norway. The first known specimen was shot at Malmö in Sweden, in 1813; another was shot near the same place, October 16th, 1847, and may be seen in the Zoological Museum at Lund; another has been shot at Quickjock, in Swedish Lapland. Only one specimen has been observed in Norway, and that is now in the Zoological Museum at Christiania.

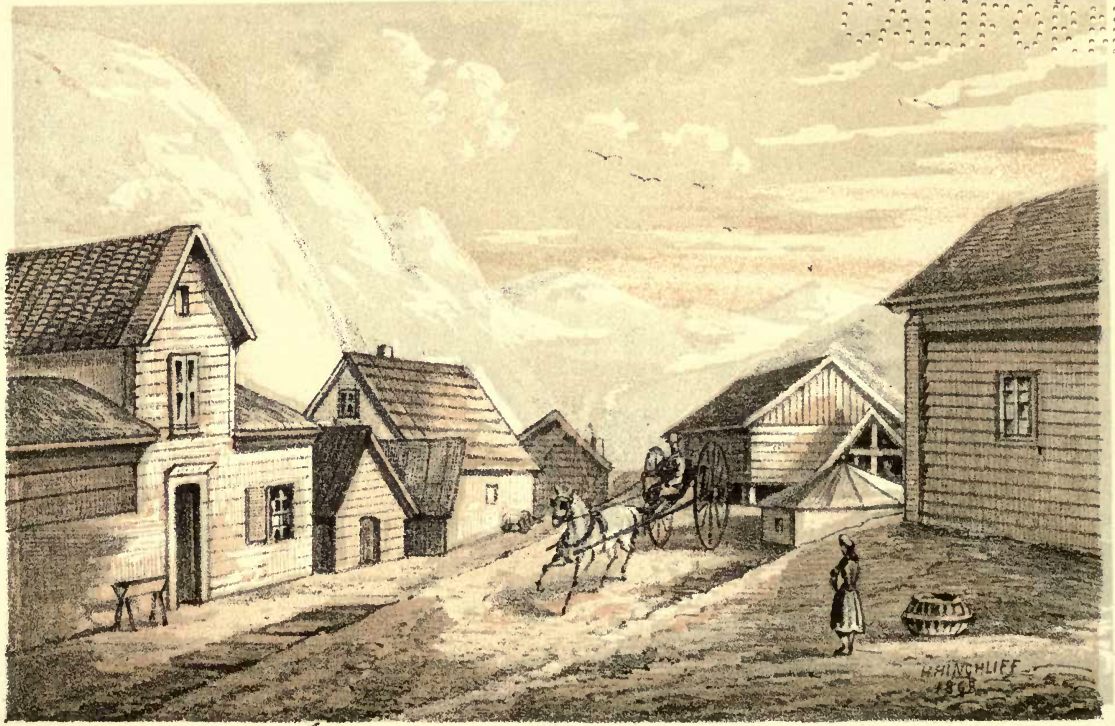
CHAPTER XVIII.

The Feathered Game of Norway.

The "Tetraonidæ," with the exception of the red grouse, so common in Great Britain, are found in most parts of Norway. The word "sport," however, as it is understood in England, is inapplicable to this country. There is not much shooting here, and the sportsman considers himself fortunate when he bags his ten or fifteen brace of birds in a single day. He will have to go far, and fare roughly before he even succeeds in doing that; but the healthy exercise and fine mountain air to be had in Norway are so invigorating to the constitution that no true sportsman will regret the time, trouble, and expense, which a sojourn in this country has cost him.

Hybrids, interesting to naturalists, are frequently to be met with in Norway. There is a hybrid, a cross between the blackcock and the female capercaillie; another between the white grouse, or *rype*, and the gray hen. The hybrids will be described more fully when we come to them.

The common partridge (*Perdix cinerea*), called in



Vincent Brooks, Day & Son, lith.

NORWEGIAN POST STATION AND CARRIOLE.

Norway the *raphön,* is occasionally seen in the neighbourhood of Christiania and Lake Mjösen. It has not been observed further north than Throndjem. The few birds of the species to be met with in this country are said not to migrate. The red-legged partridge (*P. rufa*) has not hitherto been observed in Norway. The same may be said of the pheasant (*Phasianus Colchicus*).

The capercaillie (*Tetrao urogallus*).—The male bird is called *tiur;* the female receives the name of *roi* in Norway. Found in all parts of this country, where there are pine-woods; during the autumn and winter it is by no means uncommon in the woods round Christiania. It is a cunning and wary bird, and when pursued by the sportsman dodges behind trees, inclines its head towards the ground, and listens attentively for approaching footsteps. It is trapped in this country in the following manner. The bird's run in the pine-wood is first searched out; then two stout branches of a tree, with the leaves on, are stuck upright into the ground. These branches must be fresh and green, and in this way they do not excite the suspicions of the bird. They must also be placed sufficiently far apart to admit of the capercaillie's passage through them. A heavy piece of wood is placed horizontally between the upright branches, and the whole concern is covered over with fresh leaves and twigs, so as to give everything a natural appearance. The bird runs along the ground, enters the trap, displaces the stick sustaining the log of wood, which falls, and smashes every bone in the unfortunate fowl's body.

The English factory operatives at Christiania call

the capercaillie the "turpentine bird," on account of its peculiar flavour. In the early spring the flesh tastes strongly of turpentine, as the bird then feeds principally on the buds and spines of the pine and spruce-fir.

Nilsson says that several varieties of the capercaillie are found in Sweden. This is no doubt correct, as the severity of the climate plays strange pranks with the colours of the plumage of birds in the north. Nilsson states that a cock-bird of this species has been procured in Sweden, which had the whole of the plumage of an ash-gray colour marked on the head and neck with darker spots. It was obtained in Swedish Lapland, and may be seen in the Upsal Museum, under the name of *Tetrao eremites*. Another variety, a hen, has the feathers very pale gray, marked with yellow, and white streaks and lines; the under parts white, streaked with red. Another variety, also a hen, is of a dim white colour, streaked here and there with black. This last may be seen in the Zoological Museum at Stockholm.

The food of the capercaillie consists of the buds and spines of the pine and spruce-fir, the juniper berry, the buds of the alder and birch, hazel-nuts, and even acorns. It breeds in the pine-woods, selecting a spot where water is close at hand. The nest is made in a hole in the moss or heather, and contains from twelve to fifteen eggs, which are of a pale yellow, marked with large and small pale brown spots. The young are fed on ants, larvæ, small worms, and caterpillars.

The black grouse (*Tetrao tetrix*) is pretty common all over Norway, as far north as Upper Nordland, in

the Dovre-fjeld, in Österdalen and Gudbrandsdalen. It is polygamous, and breeds frequently with the female capercaillie, with the female *rype*, and even, at least so it is said, with the wood-pigeon. It frequents subalpine districts. The male is called in Norway *aarhane;* the female *aarhöne.* The blackcock is frequently seen during the breeding-season with the female *dal-rype*, or white grouse of the valley.

The hybrid black grouse (*Tetrao hybridus*, Linnæus) is called in Norway *rakkelhane*, and is a cross between the blackcock and female capercaillie. It is much more common in Norway than in Sweden. Writing on the origin of this bird, Temminck says, *vide* vol. ii., p. 459, "Quelques naturalistes, et encore récemment M. Nilsson, sont d'opinion que cette espèce est un bâtard, fruit de l'accouplement de *Tetrao urogallus* et *Tetrao tetrix*, mais ils sont en erreur." Temminck, however, afterwards confessed that Nilsson was right.

The *rakkelhane* is black in colour, the back and wings being tinged with black-brown; the breast is brilliant steel-blue; the tarsi are covered with white feathers. It is a large bird, considerably larger than the blackcock.

The hybrid white grouse (*Tetrao logopides*, Nilsson). —There appears to be some doubt as to the origin of this bird. Nilsson asserts that it is a cross between the blackcock and female *dal-rype*. Professor Esmark, of the University of Christiania, maintains that it is a cross between the cock *dal-rype* and the gray hen. I am inclined to coincide in opinion with the last-mentioned naturalist, for these hybrids are more common in Norway than in Sweden, and preference should, therefore, be given to the opinions of Norwegian natu-

ralists on the subject. The following is the description of a specimen of this hybrid in the Zoological Museum at Christiania. Head and nape of the neck lavender, streaked with black; a mark of buff over the eye; throat and breast white, the latter spangled with black; the under parts snow-white; back and wings black, streaked with ash-gray; tail black, marked here and there with white; flight feathers white; under tail feathers white; tarsi and toes thickly covered with short white feathers. This specimen came from Österdalen, and was preserved in an ingenious manner. It was so "high" when it reached Professor Esmark at Christiania that when handled, the skin separated into thirteen pieces; the feathers also dropped off the skin. The professor, who is an accomplished taxidermist, placed the pieces of the bird's skin in warm water, and when he had cleansed them, he fitted them on a common bladder with gum. The feathers were then taken singly, and fastened on the bladder with gum. It is a perfect specimen now, as it stands in the above-mentioned museum. The habits of this hybrid are unknown.

The hazel grouse of Latham, *Tetrao bonasia* of Linnæus, is commonly found in the central parts of Norway. It is called here *hjerpe*. Its flesh is delicate, and is much esteemed by the Norwegians; so much so, that it is a common trick of the peasants to cut off the bills of woodcocks, and then sell them as *hjerper*.

The *hjerpe* has the head gray, streaked with black and red-brown; throat black; a white line runs down each side of the face, and meets in a circle round the neck; back gray, pencilled with black; breast pencilled with white; tail grayish-brown, tipped with red-

brown; flight-feathers dark brown, a white line running along the shaft of each quill; belly white, pencilled with brown; sides red-brown; tarsi and toes covered with grayish-brown feathers. The bird has sixteen feathers in its tail, and is fourteen inches in length. It has a red wattle over each eye, which it can conceal at pleasure. It nests on the ground, in moss or heather, and lays from ten to twelve pale yellow eggs, marked with brown spots.

Attempts have been made to introduce the *hjerpe* into England, but, so far, without success; the only practicable plan would be to send sittings of the eggs to England, and these may be procured without much trouble, for the bird breeds on Næsodon, a woody peninsula running into the fjord near Christiania.

Writing of the *hjerpe* a century ago, Pontoppidan says: "*Caro hujus avis laudatissima est, facilis concoctionis, nutrimenti multi et optimi, primum dignitatis apud veteres obtinuit.*"

The white grouse of the valley (*Lagopus subalpina*, Nilsson).—This bird is called in Norway *dal-rype*, and frequents the subalpine districts; it is found in Nordland, in the lower parts of the Dovre-fjeld, in Österdalen, Gudbrandsdalen, etc. The colour is snow-white in winter, the "pinnæ" being white at all times; late in the spring the feathers begin to change, when the head, neck, and breast become red-brown. A beautiful specimen of this species may be observed in the Zoological Museum at Christiania; it was shot May 1st, 1863; it is in the breeding plumage, a male bird of course. It has a comb as thin as a wafer, red like coral, and crimped; the head, neck, and breast

are brilliant red-brown, the feathers are very close, and as smooth and glossy as satin.

With respect to the *quæstio vexata* as to the moult or change of feathers of the *rype*, I must say, that after a careful examination of specimens obtained in every month of the year, I have come to the conclusion that a moult does take place in the spring, but the change of the red-brown plumage to the snow-white is a gradual growing of the feathers, and not a moult at all. One circumstance is interesting, namely, that from October to mid-winter the feathers on the tarsi and toes become thicker; a most beautiful provision of nature, when it is considered that at that time the bird is always either walking in or nestling in the snow. It is said that the *rype* is white in winter, so that it may resemble the snow in which it lies, and thus escape the notice of birds of prey.

Pontoppidan mentions a singular circumstance regarding the *rype* :—"When the first snow begins to fall with an east or north-east wind, whole flocks of *rype* are seen in the Bergen Stift, but when the first snow comes with a west or southern wind, very few are seen there."

In Norway the *rype* is shot with a small-bore rifle as it nestles in the snow; large numbers are also taken in snares. A *bonde* will capture as many as five hundred or a thousand in this manner; they are brought to market in cart-loads, and are sold at a shilling English per brace. The best way to cook them is to place them in an iron stewpan over a slow fire, with a lump of butter in it, and baste them with sour cream; cooked in this manner they are juicy and tender, but if roasted in front of a bright fire, they are dry and tough.

In the early spring the *rype* feeds on the tender buds of the spruce-fir, which gives the flesh a peculiar flavour, not disagreeable if there is not too much of it. In summer it feeds on various grasses, and especially on the *Polygonum viviparum,* called here *rype-gräs;* in autumn and winter the food is principally wild berries. The nest is made on the ground, generally under a bush, and contains from ten to twelve eggs of a ferruginous-yellow colour, marked irregularly with black spots.

The alpine grouse (*Tetrao alpinus,* Nilsson).—This bird is generally found in the northern and central alpine districts of Norway; it is also common in the western fjelds, but much more so in Nordland and the Dovre-fjeld than anywhere else; it very seldom comes near Christiania, and although it is pretty common in the mountain regions of Sweden, it is not seen in Denmark.

A cock bird procured from Gudbrandsdalen in March has the whole of the plumage white, except the lateral tail feathers, which are black; tarsi and toes thickly covered with short white feathers; a line of black across each eye, which is always wanting in the female; thin, erect comb. Towards the middle of May this species assumes the full breeding plumage, when the head, neck, and breast are bluish-gray, streaked with black. Two young birds captured in August are ash-gray, streaked with black and yellow-brown.

The *fjeld-rype,* as this bird is called in Norway, is rather smaller in size than the *dal-rype,* and may be distinguished from the latter in winter, when the plumage of both kinds is white, by the black mark across the eye.

The *fjeld-rype* keeps to the higher fjelds, amidst the regions of perpetual snow, and never breeds with the *dal-rype*. Pontoppidan quotes an ancient writer on this bird as follows:—"*Reperiuntur Lagopides in Alpibus et Pyrenæis montibus et in summis jugis. In frigore, nive et glacie delectantur, ut ubi locis inferioribus liquantur nives, altiora et soli aversa petant loca, in quibus nix perennat.*"

Some naturalists have supposed that the *fjeld-rype* is less common than the *dal-rype*, but Professor Esmark, no mean authority, is of opinion that both species are equally abundant in this country. In summer the food consists of the blades, blossoms, and seeds of various mountain plants; in winter, of the seeds and buds of alpine trees. The young are fed on insects and larvæ. The nest is made on the ground in the moss or coarse heather, and is placed for shelter near a dwarf birch or large stone. The eggs number from ten to twelve, and are deposited in the nest so as to form a square; they are of a ferruginous-yellow colour, marked with black-brown spots. When the young are hatched, the cock bird leaves them to the care of the mother, and joins his bachelor friends on the high fjelds.

CHAPTER XIX.

The Bustard.—The Plover.—The Stork.—The Crane.—The Spoonbill.—The Heron.—The Quail.—The Ibis.—The Godwit.—The Redshank.

THE bustards are by no means common in Norway. The great bustard (*Otis tarda*) is sometimes seen in the south. The little bustard (*O. tetraæ*) has been seen once in the extreme south of this country by an English traveller.

The ringed plover (*Charadrius hiaticula*) is rather common on the coast of Norway, especially about Mandal, Lister, Stavanger, and in the Flekke and Bukn fjords. It is but seldom seen in the Christiania fjord. It arrives here in March and migrates in September; it nests on the strand of fjords or by the seacoast. The female entices strangers away from its nest.

The little ringed plover (*C. minor*) is common in the south of Norway; it is also to be found on the banks of the Glommen, Drammen, and Mandal rivers, as well as in the Christiania and Rands fjords; it migrates early in September. Pontoppidan called this bird the

nordvinds-fugl, or north-wind bird, because the peasants living on the coast supposed that its cry prognosticated the approach of a north wind. The bishop also mentioned a bird which he called the *söndenvinds-fugl*, or south-wind bird, as it came with a south wind. "So that," observes the learned divine, "those two birds served as an excellent weather-glass, forming their previsions of the weather by the pressure of the winds on their bodies, somewhat after the fashion of people who know by the feelings of their bodies when there will be a change in the weather." The excellent bishop was evidently troubled with corns.

The Kentish plover (*C. Cantianus*) is called in Norway the *hvidbrysted-ryle*, or white-breasted plover; it is only occasionally seen in the south of this country.

The dotterel (*C. morinellus*) is called in Norway *rund-fugl*, or round bird. It is scattered all over Norway, and is found even near the North Cape. Its breeding-grounds here are on the strands of mountain lakes, but when the young are fledged it resorts to the seacoast.

The golden plover (*C. pluvialis*) is common as far north as the North Cape. It is found on all the low moors, and on the strand of the lonely islands north of Throndjem. It is frequently seen in spring near Christiania, and also in August, when migrating. It is called here the *fjeld-hjerpe*. Pontoppidan mentions it under the name *heilo*, and says, "It is of a greenish colour on the back, and marked on the breast with black and white spots."

The gray plover (*Squatarola cinerea*) is also common in Norwegian Lapland. Nilsson says of it, "*Köttet är godt*," or, "Its flesh is good."

The lapwing (*Vanellus cristatus*) is occasionally seen in the neighbourhood of Christiania. Great numbers breed in the vicinity of Laurvig, Mandal, Christiansand, Lister, and Stavanger. It arrives in Norway as early as the middle of February. Albino varieties are occasionally seen here of a white or dirty-white colour. Its Norwegian name is *viben*. I have not heard that plovers' eggs are considered a delicacy here.

Curious superstitions exist in most countries concerning birds, and in none more so than in Norway. According to popular belief here, the swallow and turtle-dove sympathized with our Saviour in His sufferings; not so the lapwing, which is said to have mocked at the agonies of our Lord, and was, in consequence, condemned to dwell in fens and morasses. Mr. Lloyd mentions a strange legend concerning this bird in Sweden. The lapwing was once a handmaiden of the Virgin Mary, who stole the scissors of her mistress, and, as a punishment, she was transformed into a bird, bearing a tail forked like a pair of scissors, and incessantly uttering the plaintive cry, "*tyvit, tyvit,*" or, "I stole them, I stole them."

The turnstone (*Strepsilas interpres*) is very rarely seen near Christiania; it is common in the north and round the North Cape, as well as on the low rocks near Throndjem. It migrates in September. Nilsson says that the name of *interpres*, given to the species by Linnæus, originated in a mistake. It is the redshank (*Totanus calidris*) which is called *tolk*, or interpreter, by the Swedish fishermen, on account of its giving a warning cry to other birds of the approach of the fowler. It breeds on the small islands off the south-west coast of Norway, and also in the north. It makes

its nest in a hole in the sand, or by the side of a stone, and lays four eggs of a yellow-gray colour, marked with black spots. Nilsson says, "*Köttet är smakligt*," that is, "Its flesh is savoury."

The oyster-catcher (*Hæmatopus ostralegus*) is common on all the Norwegian coasts up to the North Cape. It arrives here as early as February, and migrates in October. Its food consists of mussels, which grow to an unusually large size in Finmark, and oysters. In opening the mussel or oyster, the bird is sometimes captured alive by the closing of the bivalve's shell.

The sanderling (*Calidris arenaria*) is occasionally seen during the summer months in Finmark; it has been shot near Tromsö, the capital of Norwegian Lapland. When migrating it is seen in the south-west of Norway, keeping company with the little stint, dunlin, and knot. Nilsson asserts, on the authority of a brother naturalist, that the eggs are glossy, and of a pale green colour, marked with blood-red spots and streaks.

The white stork (*Ciconia alba*) is occasionally seen in the south of Norway. It arrives in April and migrates in August. Norwegian country people have a peculiar reverence for this bird, and think themselves fortunate when it makes its nest on their houses. It is believed that a house will never be consumed by fire which has a stork's nest on the top of it. It is a common saying in Germany that a stork will not build its nest on the house of an individual that has not paid his tithes to the clergy. Pontoppidan alludes to this popular superstition:—"*Les cigognes sont favorables au clergé, car elles ne veulent point séjourner dans aucune ville d'Allemagne où l'on ne paye point de dîme aux ecclésiastiques.*"

When a stork selects some outhouse here whereon to build its nest, the people encourage it in every possible way, and even prop up its nest with poles. I have even heard of a cart-wheel being placed on the summit of a house to form a proper and safe foundation for a stork's nest. The eggs of the stork are sometimes removed from the nest, and hens' eggs put in their place, from the singular notion that the produce will be good layers. When this is done, however, the chickens must be removed as soon as they are hatched, otherwise the stork will devour them.

The black stork (*C. nigra*) is occasionally seen in the south of Norway. It makes its nest in the crown of a large tree; the eggs are three or four in number, perfectly white, and as large as those of a common fowl.

The crane (*Grus cinerea*) is much less common now in Norway than it was formerly. It is sometimes seen on the Porsanger-fjord, in East Finmark; called here *tranen*. Nests in rushes on marshy ground, and sometimes on isolated buildings, and lays two eggs, greenish-gray in colour, marked with brown spots and blotches.

The spoonbill (*Platalea leucorodia*) is called in Norway the *ske-gaas*, or spoon goose. It is sometimes seen on the fjord near Christiania. It nests in tall reeds by the water, and lays from two to four large eggs, which are sometimes pure white, at other times marked with pink spots.

The common heron (*Ardea cinerea*) is pretty common in the extreme west of Norway, especially in the neighbourhood of Stavanger, where it is said to remain throughout the winter. Its Norwegian name is *heiren*.

Pontoppidan entertained some singular notions concerning this bird. He says, "*Ardea id habet ab omnibus avibus diversum, quod intestinum cœcum unicum et simplex obtineant singulæ, cum aliæ aves geminum nactæ sint;* by which it comes to pass that a heron may swallow an eel three times, which has scarcely disappeared before one sees the head and the whole body pass out again *ex podice avis,* and this it does several times, turning round and swallowing the eel again."

The quail (*Coturnix vulgaris*).—Professor Rasch, of the University of Christiania, an eminent Norwegian naturalist, states that he has seen this bird in Thelemarken, an extensive district in the south of Norway. It is rather common in the south of Sweden.

The glossy ibis (*Ibis falcinellus*) is called here the *sort ibis,* or black ibis, and is occasionally seen in the north of Norway.

The curlew (*Numenius arquata*) is common along all the west coast of this country as far north as Nordland.

The whimbrel (*N. phœopus*) is also common. It is frequently seen in Norwegian Lapland, and on all mountain morasses.

The black-tailed godwit (*Limosa melanura*) is rarely seen in Norway. It breeds in the Swedish island of Gottland, where it nests in the coarse grass on marshy ground, and lays four eggs of a dull olive-green, spotted and blotched with dark brown.

The bar-tailed godwit (*L. rufa*) is much more common here than the preceding species, and is even found in Norwegian Lapland. It migrates early in August, wherefore it is called in Sweden *Augusti-snäppa,* or August-snipe. Its Norwegian name is suggestive—viz., *ruströd langnœbbe,* or rusty-red longbill.

The common redshank (*Totanus calidris*) is called in Norway the *rödbenet sneppe,* or red-legged snipe. It is common about all the smaller lakes in this country, and great numbers are observed on the flat rocks north of Throndjem. It is also common in Finmark. It is this bird, and not the turnstone, which is called *tolk,* or interpreter, by the Swedish fishermen.

The spotted redshank (*T. fuscus*) breeds in the north, as far up as the Icy Sea. It nests in the coarse herbage on marshy ground. It migrates in October. Nilsson says of it, "*Köttet är godt till stek,*" or, "Its flesh is good if the bird is roasted on a spit."

CHAPTER XX.

The Sandpiper.—The Stint.—The Avocet.—The Ruff.—The Rail.—The Moor Hen.—The Coot.—The Phalaropes.—The Woodcock.—The Snipe.

The green sandpiper (*Totanus ochropus*) is found all over this country. It has been seen in great numbers at the mouth of the river Passwig, which flows into the Icy Sea.

The wood-sandpiper (*T. glareola*) is called here the *grönbenet sneppe,* or green-legged snipe. It is nearly as common as the preceding. It breeds in Finmark; the nest is made on marshy ground, but it has even been found on a tree, at a height of twelve yards from the ground. The eggs are four in number, and very pale green in colour, marked with dark red-brown spots.

The common sandpiper (*T. hypoleuca*) is found generally throughout Norway. It frequents the sides of small lakes, as well as the banks of rivers. It is called in Lapland skillili. It lays a large egg for its size, on which account, as Mr. Lloyd informs us, the Lapps have made this couplet on it:—

"Skillili, Skillili, yvoddam, yvoddam,
Reusaka mone mateu
Patta tjyidnita piedja,"

which may be rendered as follows:—

"Skillili, Skillili! I carry, I carry
An egg large as that of a Ripa,
So that my tail cocks in the air."

I have been informed by a Norwegian naturalist that he has pursued this bird in a boat on the Christiania-fjord, and that when he approached, it dived, but finding itself unable to remain under on account of the buoyancy of the water, it seized on a piece of seaweed at the bottom with its bill, and held on until the boat had left the spot!

The spotted sandpiper (*T. macularius*) is only an occasional visitor to this country.

The semi-palmated sandpiper (*T. semi-palmatus*, Temminck).—This species has been occasionally seen in Sweden and Norway. There is a specimen in the Royal Zoological Museum at Stockholm, called in Sweden the *snäppa med halflyckta fötter*, or snipe with half-webbed feet. Nilsson says that its home is in North America, where it breeds in the salt-marshes. It places its nest among the coarse grass on the salt-marshes, and lays four large eggs of an olive colour, marked at the larger ends with black-brown spots.

The greenshank (*T. glottis*) is common in summer in the Norwegian fjelds, especially in the Dovre-fjeld. It nests in the grass, under a dwarf-birch, and the eggs are so placed that all the small ends point inwards; they are four in number, and pale olive in colour, marked with black and brown spots. The young birds are fully fledged here by the beginning of July.

The curlew sandpiper (*Tringa subarquata*).—This bird, which connects the snipes with the sandpipers, is common during the summer months in the northern parts of Norway. It only visits the south when migrating. Migrates in the company of the knot. Its breeding-grounds are in the north and north-east. Nilsson says that it breeds in the south of Sweden. This is likely enough, as Temminck asserts that it breeds in Holland. Most probably, however, only a few of this species breed in Holland and southern Sweden, while the greater number proceed to the north.

The purple sandpiper (*T. maritima*), like the preceding, is common during the breeding-season in Norwegian Lapland; Professor Rasch has met with it here as late as November. Professor Keilhau, another Norwegian naturalist, found this species common in Spitzbergen and Iceland. Its favourite *habitat* here is the naked rocks on the coast, which are covered at high-tide. Now, these rocks are called in Norway *fjære*, and as the purple sandpiper is supposed by the Norwegian fishermen to resemble a mouse, *muus*, as it stands on the bare rocks, it is called here the *fjære-muus*. It breeds in East Finmark, where it makes its nest on the high plateaux of the fjelds, and lays four eggs of a yellowish-gray, marked with light brown spots.

The knot (*T. Canutus*) is common during the breeding season in Norwegian Lapland, Greenland, and Iceland. During the early autumn, the young birds of the year are seen in flocks in the south of Sweden. When migrating, they pass through Sweden, instead of Norway, to more genial climes, instinct, no doubt,

pointing out to them the shorter route. Kjærbölling, the Danish naturalist, who studied the habits of this species in Greenland, says that it lays three or four greenish-yellow eggs, marked with large and small brown spots.

The broad-billed sandpiper (*T. platyrhynca*) is not common, although it is also found in Finmark. Professor Rasch has shot it on Lake Oieren, not far from Christiania, in the beginning of August. It has been seen in the beginning of May near Fogstuen, a station for travellers in the Dovre-fjeld. Some German naturalists class this species with the curlews, and Latham calls it the "little curlew." It has nothing in common with the curlews except the point of the bill. Its eggs have been found in Norway in the middle of June; they are chocolate-brown in colour.

Temminck's stint (*T. Temminckii*) is also found in Finmark, whence it migrates in September. Nilsson says it not only breeds in Lapland, but also in the central parts of Sweden. It lays four glossy, pale yellow eggs, marked with gray and red-brown spots.

The little stint (*T. minuta*).—This bird probably breeds in Finmark. It is common near Christiania in spring and autumn, on its way to and return from the north. Nilsson says that large flocks of the species are seen in the south of Sweden in the spring and fall of the year. It keeps company with the dunlin when migrating. The nest is made on mountain morasses, and Kjærbölling says that the eggs are of a pale olive-green, marked with minute red-gray, and large brown spots.

The dunlin (*T. variabilis*) is common in all parts of Norway.

Schinz's sandpiper (*T. Schinzii*).—This is a *rara avis* here. It has been once seen in Finmark. It is common on the coast of Schleswig and Holstein.

The avocet (*Recurvirostra avocetta*) is only an occasional visitor to the south of Norway. The same may be said of the black-winged stilt (*Himantopus melanopterus*).

The ruff (*Machetes pugnax*).—This bird is common in summer in Finmark. In August it leaves the north, and may then be seen by Lake Mjösen, and near Christiania. Its Norwegian name is *brunshane*, or noisy cock.

The "Rallidæ" and "Lobipedidæ" are more common in Norway than they are in Great Britain.

The land-rail (*Crex pratensis*) is common in Norway, and is to be met with considerably within the Polar Circle.

The spotted crake (*C. porzana*) is common in the southern and central parts of this country. It does not visit the far north.

The little crake (*C. pusilla*) is by no means so common as the other species.

The water-rail (*Rallus aquaticus*).—This shy bird is common near Christiansand, Lister, Mandal, and other towns in the south of Norway. I have seen a bird that was shot near Mandal as early as February.

The moor-hen (*Gallinula chloropus*) is pretty frequently seen in the south of Norway, especially near Laurvig, a seaport famous for its lobsters, the greater part of which find their way to the London market.

The coot (*Fulica atra*) is common in Norway, but does not venture far north. It has been seen near Throndjem. It is called here the *blis-höne*. The

word *blis* signifies a blaze on the forehead, generally applied to horses. The nest of the coot is made among reeds, in the middle of a sheet of water, and contains from eight to twelve dingy grayish-yellow eggs, marked with dark spots.

The gray phalarope (*Phalarorus lobatus*).—Like the coot, this bird is lobe-footed, and is an excellent swimmer. It is by no means uncommon in this country, and has been frequently shot in Finmark and Nordland. It breeds in the north, and on the coast there, it is frequently observed swimming on the sea, at a considerable distance from the land.

The red-necked phalarope (*P. hyperboreus*) is not so common as the preceding, but is also found in Norwegian Lapland. The nest is generally made by a tuft of grass near the water, and contains four small yellowish eggs, covered with dark-brown spots. It is called in Lapland *wesitiainen*, or water-sparrow.

The woodcock (*Scolopax rusticola*) is common in the woods round Throndjem, Bergen, and Christiania, where it breeds. It arrives here in the beginning of April, and migrates in November. It is called here *skovsneppe*, or wood-snipe. Mr. Lloyd confirms the statement of the woodcock transporting her young from one place to another:—"Once, during a hare-hunt, I myself shot a woodcock, flushed by the dogs, when flying at about six feet from the ground, that was bearing an unfledged young one in her claws. It seemed to me she grasped it by the wings, one foot having hold of the one wing, and the other foot of the other; though, in consequence of intervening boughs, I did not observe the old bird when she rose, I was fortunately so near to her as clearly to see what I have

stated. I afterwards found two other young ones under a neighbouring bush, where they had retreated for shelter."

The woodcock does not appear to be much esteemed in Norway. It is a common thing for the peasants to bring them to market with their bills cut off, when they are sold to confiding people as *hjerper*. The young birds are fully fledged in this country by the end of June.

The great snipe (*S. major*) is said to breed in the central and southern parts; it is called here the *dobbelt bekkasin*, or double snipe. It nests on the ground in marshy places, and lays from three to four pale olive-green eggs, marked with black spots.

The common snipe (*S. gallinago*).—This species is common in all parts of this country, in the north as well as in the south, and especially on marshy lands in the fjelds. It is called here the *horse-gjög*, or horse-cuckoo, on account of the singular drumming noise which it makes during the breeding season, and which is supposed to resemble the neighing of a horse. Pontoppidan, speaking of the bleating noise made by this bird, says, "The *horse-gjög* is as big as a magpie; it does not cry 'cuckoo,' like another cuckoo, but bleats like a goat, wherefore it has been called by some persons *jord-geed, capreolus*."

This bird is also called the *taage-fugl*, or fog-bird, because it is supposed to be most commonly seen in foggy weather; albino varieties have been met with in Norway, wholly or partially white.

The jacksnipe (*S. gallinula*) is by no means so common as the preceding, but it is, nevertheless, frequently seen in all parts of Norway, even in Finmark.

It is called here the *smaa-bekkasin*, or small snipe. It is supposed that a few birds of this species do not migrate, but pass the winter in the south of Norway. Temminck is of opinion that this bird breeds in the environs of St. Petersburg. It certainly does so in Norwegian and Swedish Lapland. Kjærbölling affirms that it breeds in Denmark.

Nilsson says that the eggs are of a pale yellow, or gray-olive-green, marked with brown spots.

CHAPTER XXI.

The Geese.—The Swans.

WILD geese are so common in the Scandinavian peninsula that it is the custom in Sweden to capture large numbers of them in nets; at other times, regular *battues* are held, when hundreds are shot, knocked on the head with sticks, or even taken alive in the *mêlée*. In Swedish and Norwegian Lapland it is a common practice to set steel traps near the water, which capture the geese when they come to feed.

The gray-legged goose (*Anser ferus*) is said to be the stock-bird of our domesticated species. It is common in summer on the north and north-west coast of Norway, where it breeds; it is also common during the breeding-season on the small islands north of Bergen, especially on Smölen and Hitteren, near Throndjem. Kjærbölling says that it breeds in Denmark, but is much less common there now than it was formerly. Pontoppidan speaks of having seen immense flocks of this species off the coast of Nordland, and near Bergen and Throndjem.

Nilsson asserts that the gray-legged goose breeds only

on the east coast of Sweden. This is an error. Everest, writing in 1829, says, "We met with the common gray wild goose, male and female, and their brood of eight newly-hatched goslings, among the small islands near Tjotöe; but they become more frequent as we advance northwards. They are said to be birds that keep to the coast, and they are usually seen feeding below high-water mark." The wild goose feeds on fine grasses and their seeds, and on aquatic plants; their nest is made in the coarse herbage by the water, and contains from eight to twelve dirty yellow eggs.

In Sweden, wild geese are frequently taken or shot by means of the *skjut-ko*, or shooting-cow, which is made of stout canvas stretched on a kind of framework somewhat resembling a cow in shape. A hole is made in the head of the false cow, and the sportsman having got inside, pokes his gun through this hole, which is taken by the geese for the cow's horn. It should be mentioned that the false cow is painted of a colour to resemble the real animal. When all is ready, the sportsman quietly walks forward, and easily gets within range. The geese are, in fact, so completely deceived that they sometimes fly on to the back of the *skjut-ko*.

Large numbers of wild geese are captured in Lapland during the moulting season, when, having lost many of their wing-feathers, they are unable to rise from the ground. "At this season," says Lloyd, "the Finnish *ny-byggare*, or squatters, as well as the Lapps, get up regular hunts; provided with several dogs, they proceed to the morasses, where geese are known to resort, which, although frequently very wet and difficult to traverse, are not impassable. Firearms

are needless, it being considered superfluous to waste powder and shot when the birds may be obtained without; the men, therefore, are only equipped with stout sticks. When arrived at the scene of action, the dogs are slipped from their couplings, and start the birds, whose only means of escape is by reaching the nearest water. Should they succeed in this, they commonly manage to get off; but, should they not be so fortunate, the dogs soon come up with them, and by a bite in the head or neck presently put them out of their misery; in the meanwhile, the sportsman with his stick kills such as he falls in with. But as on these occasions the birds retreat very quickly, he would have much difficulty in overtaking them if he did not, during the chase, proceed on the principle of never running directly after, but alongside of and past them, and as if not aware of their presence; in which case they, believing themselves unobserved, squat at once, and conceal themselves in the grass, where they remain entirely motionless, so that one may go directly up to the spot and secure them with the hand."

Sometimes the geese turn on the dogs in their own defence. "When one meets with the large geese in the moulting season," says Læstatius, "and that a boat be not at hand, one may drive them to the shore either by casting of stones or by swimming. In the year 1828, here in Karesuando, upwards of a hundred wild geese were killed by several squatters in a remote and sequestered lake."

A common *pièce de résistance* in Norway is the breast of a wild goose, dried in the sun, and smoked like a red-herring; it is eaten uncooked. Smoked hams and herrings, as well as salmon, are also eaten

raw in this country; but Norwegian stomachs will digest anything, however nasty, if capable of mastication.

The bean goose (*A. segetum*).—This bird resembles the preceding species, except that it is smaller in size; it is common in Norwegian Lapland, where it breeds on mountain morasses. "It is notable," says Nilsson of this species, "that this goose is unknown in Siberia, where the gray-leg goose is so common."

The bean goose feeds on aquatic plants and their seeds; it also frequents the corn and bean fields, whence its name of "segetum." It breeds, in May, in the fjelds of Norwegian Lapland, as well as by the Porsanger-fjord. The nest contains from seven to ten white eggs.

Mr. Malm, an eminent Swedish naturalist, describes how, in the spring of the year, a flock of nineteen of this species was captured near Lund, in the south of Sweden. The birds were on their way to their breeding grounds in the north, when they alighted within a farmyard enclosure that was surrounded by high palisades. Wearied with their long journey, they were unable to fly over the high fences, and were all captured alive.

The bernicle goose (*A. leucopsis*) is called here the *fjeld-gaas*, or mountain goose. It is frequently seen in East Finmark, but does not breed there. Its home during the season of incubation is on the eastern shores of the White Sea. When migrating it passes southwards through Sweden, and not by way of Norway.

The white-fronted goose (*A. albifrons*).—This is another species which is common enough in Finmark during the breeding season; it is observed near

Christiania when migrating. It is called here the *blis-gaas*, or goose with a blaze; nests in the high fjelds by the waterside, where it lays from four to six yellow-white eggs. Nilsson says, "*Köttet ar ganska smak-ligt*," or, "Its flesh is very savoury."

The Brent goose (*A. brenta*) is also said to breed in Finmark. The Swedes call it the *prut*, as the peculiar noise which it makes is supposed to resemble the voice of an old woman who is beating down the price, *prut*, of an article she wishes to buy.

The red-breasted goose (*A. ruficollis*) has been twice killed in Sweden. I may mention, for the information of naturalists travelling in that country, that they may be seen in the Royal Museum at Lund. It has been once seen in Norway.

The pink-footed goose (*A. brachyrhynchus*) has been seen, in summer, in East Finmark. It is probably identical with Kjærbölling's *dvarg gaas*, or dwarf goose.

"The swan," says Pontoppidan, "is a rare visitor, and is not, properly speaking, a Norsk bird, wherefore it is not found in the east country, where the winter does not leave any water unfrozen, but on the western side, where I have observed that the winters have been milder than in Denmark and Germany, and where the sea is always open; there swans are found, especially in Sund-fjord by Svane-gaard and the neighbourhood, but not in any great numbers, for they are but the young of some few stragglers, which the hard winters of 1719 and 1740 drove hither, in search of open water, when the frost was so severe in France, that the sentinels died at their posts, the vines were frozen, and the birds fell down dead from the air. Then the whole Baltic Sea was frozen, and people

passed over the ice, from Copenhagen to Dantzic, as securely as if they had travelled by land. But all the salt waters in our land were open, especially by Bergen; so God's good providence brought us then many water-birds, and among them swans. This would appear astonishing to a philosopher, namely, open water in the north, when it was frozen in the south."

It is an interesting circumstance, that the swans on the north-west coast of Norway go to the large inland lakes during the breeding-season, where they remain until the approach of winter, but when these lakes become frozen, they return to the seacoast, which is always open on account of the influence of the Gulf Stream.

The mute swan (*Cygnus olor*) is by no means common here. A pair, in a tame state, may be seen on an ornamental sheet of water in the Royal Park at Christiania; they readily come to be fed by strangers, who throw bits of cake and bread to them.

Wild swans are common in the south of Norway, where great numbers are killed annually for the sake of the "swan-down." Hundreds of swans congregate on the southern lakes, and are pursued in boats, when they are knocked on the head with long sticks, or are captured alive. The scene is an animated one, and brings in considerable profits to the sportsmen, if the parties concerned deserve that appellation.

The hooper (*C. ferus*) is found, during the summer months, on the inland lakes of Norway, as far north as the south of Finmark. In winter it goes to the seacoast, from whence it partially migrates. When the winter has not been very severe or prolonged, the

hooper makes its appearance in Lapland towards the end of March, when it is frequently captured in steel traps, which are placed near the openings in the ice, and capture the swans when they come to drink. It is called here the *sang-svane,* or singing swan.

Bewick's swan (*C. Bewickii*) is occasionally observed in this country. I have seen a specimen that was shot on Lake Mjösen. It has eighteen feathers in the tail, while the hooper has twenty. Its home is in Siberia; it is also said to breed in Iceland. The nest is made in beds of rushes, and contains seven brownish-yellow eggs.

The Polish swan (*C. immutabilis*).—Northern naturalists have asserted that this species is not to be found in Scandinavia. I have observed it once in Norway.

CHAPTER XXII.

The Divers.—The Grebes.—The Guillemots.—The Auks.—The Puffin.—The Cormorants.—The Gannet.

During the breeding-season, some of the divers retire to the freshwater lakes in the interior of this country. When the young are old enough to fly, the parents conduct them to the seaside, in order to teach them how to swim and dive; and when they consider them sufficiently proficient, they leave them to their own resources. In Nordland and Finmark, the peasants make ornaments and head-dresses with the feathers from the breasts of the "Colymbidæ." The skin of the breast, with the feathers attached, goes through a simple process of preparation, and is then considered fit for use.

The black-throated diver (*Colymbus arcticus*).—This species is common in Norway, and is especially so, on some of the northern lakes, during the breeding season. It is seen on the Christiania-fjord in the spring, on its way to the lakes; it returns to the fjord with its young, and migrates late in the autumn. It is called here the *almindelig lom*, or common loon. It

makes a rough kind of nest among the reeds or coarse herbage by the side of inland lakes, where it lays two eggs of a gray-brown colour, tinted with black, and marked with black spots. When the young are born, the unnatural mother generally kills one of them, but she endeavours to make amends by exhibiting unusual care for the survivor. She swims about in the water, and dives to the bottom with her offspring on her back.

The flesh of this bird is rank and tough, but the Lapps esteem it as a delicacy, a proof that there is no accounting for taste in such matters.

The red-throated diver (*C. septentrionalis*).—Also common in Finmark during the breeding-season. Its Norwegian name is *smaa-lom*, or small loon. The red throat fades when the breeding-season is over, and entirely disappears in winter. The nest is made close to the water, and contains two greenish eggs, marked with brown spots. During the time of incubation, the male deserts the female, and joins his bachelor friends, but when the young are hatched, he returns to his forsaken spouse, and behaves like a respectable husband and father. Then he may be seen carrying his young ones on his back, and swimming about and diving with them in that position.

The great northern diver (*C. glacialis*).—By no means common here, although it breeds on the small islands off the west coast of Finmark. It is much more common, during the breeding-season, in Iceland, Greenland, and Spitzbergen. The peasants in Finmark make caps of the breast of this bird, and believe that it was first made without legs, but that nature, becoming sensible of her mistake, got into a pet, and

flung a pair of legs after the bird, which fully accounts for their singularly retrograde situation. It is for the same reason, according to Pontoppidan, that the bird makes its nest close to the water, so that it can roll off the nest into its natural element without using its legs at all. The Norwegian peasants declare that they know when stormy weather is approaching, by the peculiar cry which the *immer* then utters.

Pontoppidan says of this bird, "Its wings are so short, it can hardly raise itself with them; and its legs are so far back that they are not so much used to walk with as to paddle along the water; on which account the immer is never seen to come ashore, excepting in the week before Christmas, wherefore the fourth Sunday in Advent is called by the people Immer, or as the people express it, Ommer Sunday." The bishop does not give an altogether incorrect description of this species, but some of his remarks are amusing, as for example, that the bird has two holes under its wings, wherein it deposits its eggs, which it carries about with it, hatching them with as much facility on the water, as other birds do on dry land.

The great northern diver does not migrate, but remains on the water until the ice forms, wherefore it is called in Norway the *iislom*, or ice loon. The Norwegian peasants esteem its flesh, with which they generally make soup. The nest is generally made on some small island in the centre of a lake; it contains two eggs of a yellowish-gray, marked with brown spots. One of the eggs is generally addled, which, perhaps, accounts for the statement that the female always destroys one of its young.

The great crested grebe (*Podiceps cristatus*) is pretty

common in the central and southern parts of this country, but is not found in the extreme north. The nest is made in a floating mass of reeds, and contains four white eggs, which soon become stained by the decayed vegetable matter with which the bird covers them. According to Nilsson, the nest is made of floating bulrushes (*Scirpus lacustris*) and other water plants; it is fastened to the reeds in such a manner that it cannot be carried off by the winds. The upper part of the nest is flat, and the eggs are found towards the end of July or in the beginning of August. When the female sees any person approaching the nest, she covers the eggs with broken rushes or grass, and dives to the bottom of the water, coming up to breathe at a considerable distance, by which she deceives strangers as to the position of the nest. When the young birds take to the water, the mother shelters them under her wings when danger is apprehended. It is called in Norway *hvidstrubet dykker*, or white-throated diver. Migrates in October.

The red-crested grebe (*P. rubricollis*).—This species, which is called in Norway *graastrubet dykker*, or gray-throated diver, is by no means so common as the preceding. It is, however, frequently seen in the south of Norway, whence it migrates in September.

The Sclavonian grebe (*P. cornutus*) is found in all likely localities in this country. It is often seen on the Christiania-fjord, but arrives later and migrates earlier than the preceding. Mr. Lloyd asserts that birds of this species remain in Denmark during mild winters.

The *P. arcticus*, Boie.—This bird appears to be the Sclavonian grebe in its autumn plumage. At a meeting of the Academy of Sciences, held at Stockholm, in 1849,

Professor C. S. Sundervall stated that the *P. arcticus* and the *P. cornutus* were identical, but in different stages of plumage. Kjærbölling considers them to be distinct.

The eared grebe (*P. auritus*) is scarce everywhere in this country, but is occasionally seen in all likely localities. It is easily distinguished from other species by a tuft of orange-yellow feathers on the cheeks, which passes over the auriculars, and looks as if it had been brushed off the face of the bird by a human hand. Nilsson calls it the *svart-halsad dopping*, or black-necked dipper. It makes its nest in the reed beds of rivers and lakes.

The little grebe (*P. minor*) is only found in the south of Norway. It has been shot at Horten, a town on the Christiania-fjord, as early as the beginning of March. It is called in Norway the *lille dykker*, or little diver.

We come now to a class of birds which are strictly maritime in their habits, and breed in colonies on the north-west coast of Norway. Many of these birds, however, venture inland during the winter months, and thousands of auks and guillemots are seen on the Christiania-fjord in autumn.

The common guillemot (*Uria troile*) is found by thousands during the breeding-season on the west and north-west coast of Finmark. It is called in Sweden the *sill dopping*, or herring dipper, on account of its partiality for young herrings, which abound on the east coast of Sweden and on the west coast of Norway. It often lays its single egg on the bare rock. The colour of the egg varies considerably, sometimes being whitish-green, at others of a very

pale blue, marked with black and brown spots and blotches.

Brunnick's guillemot (*U. Brunnichii*) has its home in Greenland and Spitzbergen, whence it visits Norway. It is easily distinguished by the thickness of its bill. The eggs differ from the preceding species by being rounder in shape and not so long.

The ringed guillemot (*U. lacrymans*) is common on the coast of Finmark, and is generally to be seen with the common guillemot. It is very similar in appearance to the common guillemot, except that it has a white ring round the eye, which extends on to the neck, and is somewhat like the lash of a whip.

The black guillemot (*U. grylle*) is common on the west and north-west coast of Norway. In autumn the old birds are seen on the fjord near Christiania, the young birds of the year lower down the fjord. Its Norwegian name of *teiste* resembles the English provincial name of tyste. It lays two eggs in the holes or crevices of rocks, and sometimes among stones on the beach. The eggs are very pale green, marked with black, brown, or ash-gray spots. The Norwegians eat its flesh, and also make soup of it.

The little auk (*Mergulus melanoleucos*).—The home of this bird is in Greenland, Iceland, and Spitzbergen, but numerous colonies visit the coast of Finmark. It is called here the *alke-konge*, or auk king. It lays a single bluish-white egg, marked with black spots, in the hole of a rock. Nilsson says that in the winter of 1830–31 many flocks of this species visited the coast of Scania, in the south of Sweden; at times the harbour of Ystad was almost covered with them.

The razor-bill (*Alca torda*) is seen in flocks on the

coast of Finmark, and also on many of the Norwegian fjords.

The great auk (*A. impennis*).—This bird may be considered extinct in Norway, as it has not been seen for many years. It is said to be still found in Iceland. A few years ago a specimen was picked up dead on the shore near Frederickstad, in Norway. In 1844 two birds of this species were sent to Copenhagen from Iceland. The egg is large; the colour of it is dirty-white, tinged with yellow, and blotched and streaked at the larger end with black.

The puffin (*Fratercula arctica*).—This singular-looking bird is very common on the coast of Finmark, where large flocks breed on *Fugle-Ö*, or bird-island. It is also common in the Loffoden Islands. Many young birds of this species are seen on the Christiania-fjord in autumn. It is called here the *lund-fugl*. Not only do the Norwegian peasants eat the puffin, but they also salt it down for winter use. The down is also held in almost as much esteem as eider-down; but as it is plucked from the breast of the bird when dead, it does not posses the elasticity of eider-down.

The common cormorant (*Phalacrocorax carbo*) is common on the coast of Finmark, where it breeds. Pontoppidan says that this bird is very expert in catching fishes, and that it can dive twenty or thirty fathoms in pursuit of its prey. It has the power of remaining a long time under water. It is called in Sweden the *hafs-tjäder*, or sea capercaillie. In autumn it is often seen on the rivers and lakes of southern Norway. It nests in the broad crevices, or on the ledges of rocks, and lays from five to six dirty-white eggs, tinged with green.

The shag (*P. cristatus*).—This bird is smaller in size than the preceding, wherefore it is called in Norway the *smaaskarv*, or small cormorant. It is common on the west coast of Finmark and Nordland, in this country. The nest is made of dry seaweed, and contains from three to five greenish-white eggs.

The gannet (*Sula bassana*) is common enough in some parts of Norway. It is seen in winter on the Christiania-fjord, and towards the early spring it proceeds to the south-west coast of Norway in pursuit of the young herrings. This bird is called in Norway the *havsule*. *Sule* is an old Norsk word, still in use here, and appears to be a corruption of the word *svale*, or swallow. Thus, *havsule* means sea-swallow, a designation which the gannet has gained for its high flight. It was known to Pontoppidan, who has given an amusing engraving of it in his work on the natural history of Norway. The gannet there represented has its legs very far back, and a large horny protuberance on its head, resembling in shape an old-fashioned snuffbox. The bishop says, "The gannet is like a goose, and is eatable when roasted or salted. It is not seen in Norway until the end of January, or in the beginning of February, when the herring fishery begins. It does not come nearer land than half a Norwegian mile; thus the fisherman knows when the fish are in the narrow and shallow waters. At Easter it is seen no more. It is so stupid that, by laying a few herrings on a floating-board, it may be enticed to the boat, and killed with the oar." The nest is made of seaweed and dry grass, and contains a single greenish-white egg. The egg is small, considering the size of the bird.

CHAPTER XXIII.

The Gulls.—The Skuas.

Some years ago a German naturalist, residing near the Varanger-fjord, close to the Russian frontier, in the eastern part of Finmark, obtained specimens of almost every known species of gull. The "Laridæ" are not only common in East and West Finmark, but also on all the fjords with which Norway abounds.

The little gull (*Larus minutus*).—According to Nilsson this species is confined to the island of Gottland, off the Swedish coast. It is occasionally seen in Norway, where it is called the *dverg-maage*, or dwarf gull. It breeds in the island of Gottland, and lays three eggs, which are yellowish-brown or yellowish-green in colour, marked with large and small grayish and brown spots.

The black-headed gull (*L. ridibundus*).—This bird is called in Norway *lattermaagen*, or the laughing gull, as its cry is supposed to resemble a laugh. It is by no means common here, although it has been seen in summer on some of the Norwegian lakes, at a con-

siderable distance inland. The laughing gull (*L. atricilla*) is very seldom seen in this country.

The ivory gull (*L. eburneus*).—The home of this species is in Greenland and Spitzbergen, whence it occasionally visits the west coast of Finmark and Nordland, in Norway. It also occasionally visits the vicinity of Bergen and Throndjem. It feeds on fish, alive and dead; and when pressed by hunger, it will eat fish in a putrid state. Its Norwegian name is *hvid-maage*, or white gull.

The kittiwake (*L. tridactylus*).—During the summer months this bird visits the far north; it is seen on the Christiania-fjord in autumn when migrating. It is said to pass the winter in the south of Sweden, when the weather is not very severe. Mr. Lloyd speaks of an old female kittiwake that was found alive one winter's morning in the kitchen of a house at Lund, a town in the south of Sweden. "During the preceding night she had fallen down the chimney, on the top of which she had probably perched to rest herself." Called in Norway *tretaaet-maage*, or three-toed gull. Professor Keilhau says it breeds on the coast of Finmark. The nest is made on low rocks, and contains three eggs of a pale olive colour, marked with gray and brown spots. Nilsson says that the young are fully fledged by the beginning of July.

The common gull (*L. canus*).—Common on all the Norwegian coasts, and is frequently seen inland, indeed, Nilsson says he saw it on the Norwegian mountains; called here the *graa-maage*, or gray gull, and *fisk-maage*, or fish-gull. Nilsson speaks of a variety of this species, called in Sweden the *hvitspolig fiskmäse*, or white-quilled fishing gull, very similar in ap-

pearance to the common gull, but larger in size, and with a larger bill.

The Iceland gull (*L. Islandicus*) is found in summer in great flocks in Iceland, and also in Greenland. It visits the coast of Finmark and Nordland in wi ter. Many birds of this species pass the winter in East Finmark, and may be observed on the Varanger-fjord there. It is called here the *Islandsk-maage*, or Iceland gull. It feeds on live and dead fish, and is by no means particular as to what it gets. It frequently follows in the wake of ships to pounce on the offal that may be thrown overboard. It breeds in Greenland and Iceland, and keeps company with the glaucous gull (*L. glaucus*).

The herring gull (*L. argentatus*).—Common on all the Norwegian coasts, in the north, as well as in the south. It is said to be so common on the island of Sylt, off the coast of Schleswig, that from thirty to forty thousand eggs of this species, which are greatly esteemed for their flavour, are annually sold. It is called in Norway the *store graa maage*, or great gray gull. The nest is made on the bare rock, and contains three eggs, larger in size than those of other gulls, and of a greenish-blue colour, marked with brown and ash-gray spots. It does not migrate from this country.

The great black-backed gull (*L. marinus*).—Found in the south of Norway, whence it does not migrate. It occasionally visits the far north, and has been shot near Tromsö, the capital of Finmark. It feeds on fishes, young sea-birds, mussels, and small crabs. The nest is made on the marshes by the sea, and contains three or four greenish-yellow eggs, marked with large and small brown-black spots. The eggs are much es-

teemed as an article of food. It is called in Norway the *hav-maage*, or sea-gull.

The lesser black-backed gull (*L. fuscus*) is found generally throughout Norway, on the west coast in January and February, during the herring fishery. In summer it visits the coast of Finmark. It is called here the *silde-maage*, or herring gull, for when the shoals of herrings make their appearance off the west coast of this country, and get into the shallow water, this bird is seen skimming the surface of the sea, and seizing any straggling young herrings which sport near the top of the water. When the fishermen see the herring gulls approach, they know that the fishes are in the neighbourhood. The appearance, therefore, of this bird is always considered a welcome sign on the west coast. It feeds principally on young herrings, in pursuit of which, it dives to a considerable distance under water. The nest is made on barren land near the sea, and on rocks. The eggs vary much in colour, and are grayish-brown, pale green, or olive-green, marked with red-brown and dark brown spots.

The glaucous gull (*L. glaucus*) is found in Greenland, Iceland, and Spitzbergen; a few also breed on the coast of West Finmark, as well as near the Varanger-fjord in East Finmark. It is common in winter off the west coast of Finmark and Nordland. It is called here the *Spidsberg-maage*, or Spitzbergen gull. It is of large size, being two feet six inches long, and will eat almost anything; and when pressed by hunger in winter, it even subsists on the excrement of other birds. It has a strong *penchant* for the eggs of other sea-birds, especially for those of the eider-duck, as well as for her ducklings. The nest is made on a

high rock or precipice by the sea, and contains three eggs, yellowish-gray in colour, marked with dark brown and ash-gray spots. Mr. Malm, an eminent Swedish naturalist, says that this species breeds on Renö, an island in East Finmark, in company with many thousands of other seafowl.

The "Lestrinæ" are only common, in summer, in the north of Norway. They come south in autumn, and are then seen in the south and south-west.

The following is Pontoppidan's description of the skua:—"*Skue er af skabning næsten som en stor maage, og kulsort som en ravn,*" that is, "The skua is in form nearly like a large gull, and coal-black like a raven." The severe climate of the north has no effect on these birds.

The common skua (*Lestris catarractes*).—This species is common enough on the northern coasts of Norway. A straggling bird is occasionally seen near Bergen, but no further south.

Pontoppidan gives it the character of being very courageous in defence of its young, "When any person approaches its nest, the skua is not ashamed to assail him, and strikes hard with its wings; wherefore, one must sometimes use one's knife to defend oneself, against which they fly and kill themselves."

It attacks and kills young gulls, and the young of other seafowl. It breeds in flocks, and lays two eggs, yellowish-green in colour, marked with large and small brown and gray spots.

The pomarine skua (*L. pomarinus*).—Common in the same localities as the preceding. It is often seen in the neighbourhood of the North Cape. It is called here the *bredstjerted-jo*, or broad-tailed jo.

Richardson's skua (*L. Richardsonii*).—Common all along the Norwegian coasts. Professor Rasch, of the University of Christiania, says he once shot two male birds and a female of this species by the side of a small inland sea near Mandal, in the south of Norway. This bird preys on young gulls, on which account it is called in Norway the *jo-tyv*, or jo thief.

Buffon's skua (*L. Buffonii*).—This species is common in Swedish and Norwegian Lapland. It is seen in the Dovre-fjeld, as well as in the mountains of Lapland, on which account it is called in Sweden the *fjäll-labbe*, or mountain mew. Professor Esmark informs me that this species breeds in Finmark, where it makes its nest by the sides of small inland lakes.

CHAPTER XXIV.

The Terns.—The Petrels.—The Great Shearwater.—The Manx Shearwater.—Seafowl off the Coast of Norway.—Methods of Capturing them and their Eggs.

The Caspian tern (*Sterna caspia*).—This bird makes its appearance on the west coast of Norway in May, and migrates in the autumn. It forms its nest on the bare rock, and lays two or three eggs, of a pale gray colour, tinged with green, and covered with black and brown spots.

The Sandwich tern (*S. cantiaca*) is only a rare visitor here.

The common tern (*S. hirundo*) is common everywhere in the north, as well as in the south. It is called here the *almindelig terne*, or common tern, and also *makrel terne*, or mackerel tern, for it follows the shoals of mackerel, in pursuit of the small fishes and marine insects which make for the surface of the water as the mackerel pass under them.

The roseate tern (*S. Dougallii*) is merely a casual visitor to this country; it has been seen, however, in Norwegian Lapland. Its habits are but little known

here. Nilsson says little about it, and Lloyd does not include it among the Scandinavia fauna. I have been informed by a Norwegian friend, on the authority of a German naturalist residing in East Finmark, that the roseate tern occasionally breeds there. The eggs are stone colour, marked with black, brown, and gray spots.

The Arctic tern (*S. arctica*) is also common in Norwegian Lapland, where it breeds. This species, and not the common tern, is the *S. hirundo* of Linnæus. It was Temminck who pointed out the difference. It much resembles the common tern, except that the bill is bright red, and short; the mantle and wings are of a darker shade than in the other species, while the legs are much shorter. It is called in Sweden the *rödnäbbad tärna,* or red-billed tern. It feeds on fishes, insects, and small crabs. It makes its nest in a hole in the sand, and lays two or three eggs, similar in colour to those of the common tern, but smaller in size.

The lesser tern (*S. minuta*).—I have only seen a single specimen of this interesting little species in Norway. It is pretty common in the south of Sweden, as well as in Denmark. It lays two or three very pale stone-coloured eggs, marked with small black and gray spots.

The black tern (*S. nigra*).—This bird is pretty common in marshy places, in the central and southern parts of this country; it does not visit the extreme north, nor is it so early a visitor here as some of the other species. Its Norwegian name is *sort ternen,* or black tern. Feeds on insects and larvæ, and makes its nest in marshy places, or by the sides of inland

lakes. It lays three or four yellowish-gray eggs, marked with brown spots.

The white-winged black tern (*S. leucoptera*, Temminck).—This bird is occasionally seen in Norway and Sweden. According to Lloyd, it is rare in Denmark. Its habits are unknown.

The whiskered tern (*S. leucopareia*) is simply a casual visitor here. Kjærbölling, the Danish naturalist, says that it lays three or four eggs, pale green, marked with brownish-gray and dark brown spots.

The gull-billed tern (*S. Anglica*) and the noddy tern (*S. stolida*) are neither of them found in Norway.

The storm birds, as the petrels may be called, are rather common on the west coast of Norway. Bulwer's petrel and Wilson's petrel are unknown here. At any rate, I have not heard, on any trustworthy authority, that they have been seen in this country. The habits of these species are, strictly speaking, maritime. They appear to live on the water, and are only driven on land by high winds.

The Fulmar petrel (*Procellaria glacialis*).—This bird breeds in the Arctic regions. It is seen by sailors skimming the water at a long distance from land. It is often driven by gales of wind on to the coast of Finmark and Nordland. During severe winters, it is frequently met with in the south of Norway. I have seen a specimen that was picked up dead in the Royal Palace gardens at Christiania, after a severe storm. It is called here the *hav-hest*, or sea horse, because it is supposed, when breathing, to imitate the snorting of a horse, while the way in which it walks the water is considered to resemble a horse's gallop. The oil extracted from it is said to be a remedy for rheumatic

complaints and other ills which flesh is heir to. The Norwegian peasants consider its flesh to be tender and well-flavoured. Its food consists of the dead whales and seals which it finds floating on the sea, as well as the marine insects adhering to their bodies. The nest is made in a hole in the shingle on the beach, or in the fissure of a rock, and contains a single white egg.

The stormy petrel (*Thalassidroma procellaria*) is pretty common off the west coast of Norway. The fishermen meet with it many miles from land. It nests in the holes of a cliff, or under large stones, and lays a single white egg, much smaller than that of the Fulmar petrel.

The great shearwater (*Puffinus major*) is a bird of occasional occurrence on the north and north-west coast of Norway; it is called here the *store-skrabe*, or great scraper. Large numbers of this species are said to breed on the banks of Newfoundland, and a few in Iceland.

The Manx shearwater (*P. Anglorum*) is often seen off the west coast of Norway. The fishermen say they often fall in with it at a long distance from the land; it is called the *skrabe*, or the scraper, because it is said to scrape a hole in the sand by the side of a large stone, where it makes its nest, but does not incubate after the fashion of other birds, for it sometimes lies with its belly on the eggs, at other times on its back! It is said to conceal itself by day, and to venture forth in search of food when the sun has gone down. The nest is made in a hole in the sand by a large stone, or in the hole of a rock, and contains one large white egg.

Seafowl off the Norwegian Coast.

The north and north-west coast of Norway abound with various species of seabirds. Speaking of these winged fowls of the air, Pontoppidan says, "Their feathers and down, which are collected and sent to foreign parts, together with their flesh and eggs, afford a good living to many people, and the good grass which grows from the manure left by the dung of the birds on the islands and holms on the coast." The bishop goes on to state, that the ground on the numerous islands off the coast is so covered with nests that it is difficult to find a bare spot for one's foot; and as for the myriads of seabirds in the air, read what the same learned divine says about them:—"*Tantaque supervolantium turba, ut nubium instar, solem cœlumque auferant; tantusque vociferantium clangor et strepitus, ut prope alloquentes vix audias.*"

As the feathers of seafowl are so valuable, it will be easily understood that the poor fishermen on the coast readily underwent danger and trouble in procuring them. On the west coast of Finmark small dogs are trained to go into holes in the rocks for the purpose of dragging out the puffins, auks, and guillemots that had ensconced themselves there. I have been informed that a small species of dog is trained for the purpose, and that the little animal goes in, seizes a bird by the tail, that bird seizes another, and so on in succession, until the dog backs out of the hole, dragging a string of birds after him! *Relata refero.*

In Pontoppidan's amusing work on the natural history of Norway, a woodcut is given of the "*Nordlansk fugle-fangst,*" or method of obtaining seafowl and their

eggs in the north. "The fowlers," says the bishop, "either climb up those high and steep rocks, finding here and there a resting-place for their feet, or else they are let down from the top, a hundred fathoms or more, that they may get into the hollow places under the overhanging cliffs and caves made by nature."

When the fowlers climbed the rocks they were assisted in their work by a long pole, twenty feet in length, and which had an iron hook at the end; the men who were standing below fastened the iron hook at the end of the pole in the waistband of the climber; they then gently pushed him up the rock, until he came to some part of it in which he could place his feet; another man was then assisted up in like manner, and the two men were able to help each other higher up still. It generally happened, however, that one or more fowlers perished every year in following their dangerous but exciting occupation.

Herr Peter Clausen, an ancient Norwegian divine, who flourished in the early days of the Reformation, and was a bitter enemy of Popery, states that a law was then in vogue, that if a fowler were killed in climbing the rocks, his nearest relation was obliged to kill himself in a similar manner, and if he refused to do so, the dead man was denied Christian burial. One would suppose that few men would be willing to break their necks for the melancholy satisfaction of knowing that their deceased relations would be decently interred. If any such absurd law existed, it was doubtless made for the purpose of teaching the fowlers themselves to be careful how they risked their lives.

When the rocks were so high that no one could climb them, the fowlers were let down from above by

ropes, and thus captured the birds sitting on their eggs in such numbers that a boat was soon filled with them. This reminds one of Shakespeare's description of "one that gathers samphire, dreadful trade!" The Norwegian fowlers go down precipitous cliffs where they can barely find places to insert their fingers and toes, and are nothing daunted, although a hundred fathoms or more intervene between them and the bases of the rocks.

CHAPTER XXV.

The Ducks of Norway.—The Eider Ducks.

Pontoppidan mentions a species of duck, which he calls the *stock-and*, or log-duck, because it deposited its eggs on a log of wood immersed in the water; the eggs being hatched by the heat of the sun's rays. This would, probably, be none other than the common wild duck or mallard, which sometimes places its nest among timber partly immersed in the water or in the fork of a decayed tree. Audubon mentions having found the mallard's nest on large and prostrate logs three feet above the ground, in the centre of a corn-brake at a considerable distance from the water. I once found a mallard's nest in the fork of a decayed tree in a gentleman's park in Yorkshire, at several hundred yards from, but in sight of a pond.

It appears to have been believed in ancient times that certain water-birds, and especially ducks, were generated on the coast of Great Britain from putrefactions and fermentations in the water. An old writer says on this subject, "*Aves Britannicas non oriri ex arborum fructibus aut foliis, aut ex lignis navium in*

mare decidentibus atque in fungos aut conchulas degenerantibus, fundamentum habeo, quod nec ratio, nec experimentum, nec auctoritas id persuadet. Concedo equidem ex lignis putrescentibus in mari nasci vermes, non circa Scotiam tantum, sed alibi etiam. Nego tamen aves Britannicas, de quibus hic sermo est, inde habere ortum suum." Thus Pontoppidan writes, but it is evident that the bishop thought it necessary to declare his unbelief in the peculiar notions entertained in his own days concerning the origin of British birds; he goes on to declare that those birds were produced from eggs, after incubation, "*more alienorum anserum. Probatur testimonio Alberti Magni, Gerhardi a Vera, et Batavorum, qui id oculis viderunt.*"

The common eider (*Somateria mollissima*) is called in Norway the *eddr-fugl*, and breeds on the small islands off the north and north-west coast of Finmark. It is also common in the Varanger-fjord, in East Finmark, and in the Loffodens. This bird was formerly very common in Greenland, Iceland, and Spitzbergen; but it has been so persecuted there for the last twenty years, that its numbers have greatly decreased. The same may be said of it on the breeding-grounds off the Norwegian coast. A few straggling birds may sometimes be seen near Christiansand; and I have myself seen a remarkably fine male specimen, which was shot on Ladegaardsöen, near Christiania, in the month of May.

The down of the eider is more valuable than that of any other bird. The reason of this is simple: this species plucks the down off her breast to line her nest with, hence its elasticity. The down is so elastic, that the quantity required wherewith to line a large quilt

may be compressed in a man's hat. If the down is plucked by hand from the breast of a dead bird, it has no elasticity at all.

The eider is strictly preserved in the north of Norway, and is not allowed to be killed north of Throndjem. The penalty is 1 sp. dollar for every bird destroyed, a considerable sum for a Norwegian peasant to pay. So few birds visit the southern and central parts of this country, that the law does not prohibit the killing of them there. So much care is now taken of the birds on their breeding-grounds, that a gun is not allowed to be discharged in the neighbourhood, for fear it should scare them away. Notwithstanding all precautions, however, the species gets scarcer and scarcer every year. The places where they breed are called in the Norwegian language *fugle-vær,* or bird islands.

The female eider plucks the down from her own breast, in order to line her nest with it. She is very tame during the time of incubation, and will quietly let any person take her off the nest, in order to remove the down. A Norwegian naturalist, writing to me from Hammerfest, the principal town of Norwegian Lapland, says,—"The eider, though naturally wild, while sitting on her eggs allows herself to be kicked or thrown off her nest in the search for down; and it is not found that she deserts her nest, or makes another the same year." I may mention that this bird is so tame, she even makes her nest under the door-step of the fisherman's cottage.

Eider-down is soft and elastic, and is pale brown in colour. It is exported from the north of Norway to Denmark, France, Russia, Germany, and Great Britain.

In Norway the down is used for light beds. These "overdowns," as they are called here, are uncomfortable coverings. They are oppressively hot in summer, and no doubt check perspiration, being also conducive to nightmare and wakefulness. It would be difficult, however, to find a house in Norway where they are not used.

The people on the coast of Norway are allowed by law to remove the down twice from the eider's nest. The bird then covers the eggs a third time with the down from her breast, which is not permitted to be taken until the eggs are hatched; but it should be removed from the nest as soon as the ducklings are out of their shells, otherwise it will be worthless, especially if rain should happen to fall on it. The eider covers her eggs with the down when she leaves her nest in search of food. Instinct teaches her to do so, in order to protect the eggs from the gulls, skuas, and crows, which are constantly on the watch to steal them. The gull and skua occupy the same *terrain* as the eider, and not only steal numbers of the eggs, but commit sad ravages among the eider ducklings when they first take to the water.

This species of duck is not affected by the severe cold of the north. It is constantly on the water, except during the time of incubation, and it is frequently frozen hard and fast in the ice on the fjords. This only takes place when the winter sets in unusually early.

Pontoppidan gives us this information concerning the eider:—"If the first five eggs are taken away the bird lays again, but only three eggs, and in another nest; and if those are stolen, she lays a single egg.

The female sits on the eggs for four weeks, and the male bird watches by her side. If any human being or beast of prey approaches the nest, the male bird cries *hu, hu, hu,* and then the female covers her eggs with moss and down, which she has ready for the purpose, and joins her mate on the water. If she remains away too long, the male bird drives her back with his wings, and if the eggs are spoilt, he gives her a beating, and deserts her."

The male eider does not at any time sit on the eggs, but when the ducklings take to the water, he accompanies them, and scares away gulls, skuas, and other birds. The eminent Danish naturalist Kjærbölling estimates that 72,000 nests of the eider duck are found annually in Greenland, Iceland, Spitzbergen, and the north of Norway. The number of nests found in former years was much greater. Kjærbölling also states that each nest yields a sixth of a pound of down. He must be speaking of the down before it has been cleansed, for I have been informed by a Norwegian naturalist, who resides at Hammerfest, and has studied the habits of the eider on its breeding-grounds, that the quantity of clean down procured from each nest, and fit for sale, does not amount to more than an ounce. Some years ago the best eider-down could be purchased at Hammerfest for twelve shillings, English money, per ounce; now the price is sixteen shillings per ounce, and it is much dearer at Christiania.

The eider feeds on mussels, crabs, shrimps, and small fishes; it opens the mussels by throwing them down from a height on to a rock or stone, when the shells are broken. The nest is made of dry grass and seaweed, and is lined with moss and down; it is never

placed on a spot higher than twenty feet above the sea level; the nest contains five or six eggs, as large as those of a goose, and are grayish-green in colour. When the pairing season approaches, the male birds assemble on their fighting grounds and contend for the possession of the females; these latter stand quietly looking on to witness the combats, and appear to view with complacency the prowess of their favourites.

The king eider (*Somateria spectabilis*).—This beautiful species is common enough in Iceland and Spitzbergen; it frequently visits the Loffoden Islands and the west coast of Finmark, but is seldom seen in any other part of Norway; the Swedes call it the *prakt-ejder*, or beautiful eider, and it well deserves the name.

The following is a brief description of the male bird of this species:—Crown of the head and nape of the neck, pale lavender or mauve; cheeks, light sea-green; the base of the maxilla has a black line which runs along each side of the throat, and is triangular in shape; breast, pale pink; back and mantle, snow-white; shoulders, lower parts of the back, stern, and tail, black; secondaries, white; tertials and quills, black; belly, vent, and under tail-coverts, black; sides, snow-white; bill, legs, and feet, brown-red; irides, orange-red. The contrast and brilliancy of the colours give the bird a charming appearance. A knob or protuberance rises from the root of the bill, the upper edge of which is lined with short white feathers, while the outer edge is covered with short, black feathers, as smooth as velvet; the colour of this knob is brown-red. The female resembles the common eider, except she is not so clumsy-looking.

The Norwegian peasants believe that the king eider is a very ancient bird of the common species, and as the protuberance alluded to above somewhat resembles a crown in shape, they call him the *eddr-konge*, or eider king. The food is much the same as that of the common species. The eggs are five or six in number, and are olive-gray in colour; they are rather smaller in size than those of the common eider.

CHAPTER XXVI.

The Other Species of Duck in Norway.

THE common shieldrake (*Tadorna vulpanser*) is pretty common on all the Norwegian lakes and fjords, especially on Lake Mjösen and on the small lakes in Thelemarken; it is called here the *ring-gaas*, probably from the band of bright red-brown which passes round the breast and on to the back; its Swedish name is *graf-and*, or burrowing duck, no doubt because the female often nests in rabbit burrows by the seaside; if she leaves her nest during the season of incubation for too long a time the male drives her back with his wings. Pontoppidan asserts that the male and female sit by turns on the eggs, and that the ducklings are hatched in four weeks.

The ruddy shieldrake (*T. rutila*).—Very seldom to be met with in this country. Norwegian naturalists know little or nothing of its habits.

The shoveller (*Anas clypeata*) is another rare bird here, but has been shot near Christiania and also in Finmark; called here the *skovl-and*, or shovel duck; the nest is made of grass, and is lined with the down

from the breast of the duck herself. The eggs vary from eight to twelve in number, and are white, tinged with a greenish shade.

The gadwall (*A. strepera*).—Another very rare bird in Norway. The eggs are said to be from seven to nine in number, and greenish-gray in colour.

The pintail (*A. acuta*).—Called here the *spids-and*, and is common during the breeding-season in Norwegian Lapland; it is seldom met with in the neighbourhood of Christiania. The pintail is said to be partial to wild berries, especially the bilberry. The female lays from six to nine dirty white eggs, which she covers, when in search of food, with the down from her own breast.

The wild duck (*A. boschas*).—Common in all parts of this country, in the north as well as in the south, and even high up among the fjelds where water is to be found; called here the *græs-and*, or grass duck, also the *vild-and*. In summer this bird is common on all the inland lakes of Norway; there visitors to Christiania will find it on Lake Öieren, a few English miles distant from the Norwegian capital. When winter approaches, it betakes itself to the seacoast. According to Pontoppidan, the male and female sit on the eggs alternately.

The garganey (*A. querquedula*) is occasionally seen in the south and south-west of Norway. The nest is made on marshy ground of reeds, grass, and down from the bird's breast, and contains from nine to twelve very pale buff eggs.

The teal (*A. crecca*).—Next to the wild duck, this is the most common species to be met with in this country; it breeds on marshy ground on the fjelds, on the

islands off the south-west coast, and in Norwegian Lapland; called here the *krik-and;* it nests on marshy ground, and lays from eight to twelve very pale buff eggs, marked with almost imperceptible brown spots. Nilsson says of this species, "*Köttet är läckert,*" or, "its flesh is dainty."

The wigeon (*A. Penelope*) is very common during the summer months in Nordland and Finmark, where it breeds; it is seen in flocks in the vicinity of Christiania in autumn as well as at the mouth of the Glommen, the largest river in Norway. The Norwegian name is *pip-and.* The favourite breeding-grounds are by the sides of the northern lakes; the nest is lined with the down from the bird's breast, and contains from six to eight creamy-white eggs. Nilsson says that the female has her ducklings with her as early as Midsummer.

The American wigeon (*A. Americana*).—A bird of very rare occurrence in this country.

Steller's western duck (*A. Stelleri*) is occasionally seen in East Finmark; breeds in Kamskatka; is said to arrive on the Varanger-fjord in East Finmark in May, but does not make its appearance there every year. The following is the description of a male and female shot in East Finmark:—The male bird has the head and neck grayish-white, with a small patch of dark green on the forehead and occiput; throat and lower part of the neck, running on to the back, metallic blue-black; a white ring round the neck; breast, belly, and flanks, pale red-brown; back, lower part of wing, and tail, blue-black; shoulder of wing, white; quills, bluish-brown; a curl of pure white feathers on the frontal part of the wing; vent and

under tail-feathers, dusky-brown; irides, red-brown; speculum, white; a circle of black round each eye; bill, legs, and feet, black. The female is pale brown, pencilled with dark brown; speculum, blue-black; the feathers tipped with white.

Steller's duck is called in Sweden the *Alförrädore*, or betrayer of the long-tailed hareld, because it immediately precedes the arrival of that bird, and seems to announce its coming, for soon after Steller's duck appears the long-tailed duck is observed in the same locality.

The velvet scoter (*Oidemia fusca*).—Common during the breeding-season in Lapland. It is found in the spring and autumn on the Christiania-fjord, and is the last of the duck tribe to leave the stormy region of the North Cape. Also common on the small lakes in the western fjelds of Norway. Many male birds of the species are observed on the Christiania-fjord in July, having apparently deserted the females when they have their ducklings with them. Although a bird delighting in high latitudes, it is said by Nilsson not to visit either Iceland or Greenland. Called in Norway the *svart-and*, or swarthy duck. The nest contains from eight to twelve pale buff eggs of a large size. Only partially migrates, and numbers remain in the south of Norway throughout the winter.

The common scoter (*O. nigra*).—This bird breeds in Lapland, and is common there. In autumn many young birds of the year are observed on the Christiania-fjord. Partially migrates; nests under a low bush by the side of a lake, and lays from eight to ten very pale-yellow eggs, rather smaller in size than those of the preceding species. Called in Norway the *sjöorre*, or sea blackcock.

The surf scoter (*O. perspicillata*).—Occasionally seen in Finmark, where a few pairs are said to breed. Very little is known of its nidification, except that the eggs are said to be white.

The tufted duck (*Fuligula cristata*).—This bird is called in Norway the *top-and*, or crested duck. It is common in Finmark, where it breeds. Observed near Christiania and in the southern parts of this country in autumn. The Swedes give it the name of *viggen*, or the wedge, from its fanciful resemblance to that article, as the bird lies on the surface of the water. The nest contains from six to eight greenish-gray eggs. The flesh is very oily and fat, and the Norwegian peasants make soup of it.

The scaup duck (*F. marila*).—Called here the *berg-and*, or mountain duck. Breeds in Finmark, and also, so it is said, in the western fjelds of this country. The nest is made in the herbage by the side of a lake, and contains from eight to ten olive-gray eggs, tinged with green. Incubation begins at the end of May.

The pochard (*F. ferina*) is one of the rarest ducks in this country. It is common enough in Iceland, where it breeds. Passes through Norway when migrating. The Swedes give it the name of *rödhalsad dykand*, or red-necked diving duck. The nest is made in coarse herbage by the water, and the bird lines it with down from her own breast. She lays from nine to fourteen yellowish-gray eggs, sometimes tinted with green. Nilsson says of it, "*Köttet är forträffligt*," or, "its flesh is excellent."

The ferruginous duck (*F. nyroca*) is of rare occurrence here. It is said to breed in Schleswig and Holstein.

The golden eye (*F. clangula*) is common in Finmark, and also on the Throndjem-fjord during the breeding-season. It is seen in the Christiania-fjord in the spring, on its way to the north; called in Norway the *knip-and.* Lloyd says of it, "From the brilliancy of the eye of this bird, there is a saying in Sweden, '*Klart som ett knip-öga,*' that is, 'bright as the eye of the golden-eye garrot.'" The peasants of Finmark are partial to the eggs of this species. The nest is made under a low bush, and sometimes in the hole of a tree, and contains from nine to twelve pale-green eggs, tinted with blue. When the nest is made in a tree, the mother takes the ducklings, one at a time, to the water, by holding them between her neck and bill.

Burrow's golden-eye is occasionally seen in Finmark. It has been shot on the Varanger-fjord. Breeds in Iceland, and lays from ten to fourteen pale-green eggs. The buffel-headed duck (*F. albeola*) has not been seen in Norway.

The harlequin duck (*F. histrionica*) is only of rare occurrence here; I have, however, seen a male and female that were shot in Finmark. According to Nilsson, albino varieties of this species have been seen in Sweden that were white, streaked with *brown.* The harlequin is called in Sweden the *ström-and,* and in Iceland the *straum-önd,* both appellations signifying stream duck. The nest is made by the side of a running stream, and contains from six to nine pale yellowish-white eggs.

The long-tailed duck (*F. glacialis*).—This beautiful bird is common during the breeding-season in Norwegian Lapland; also in the Dovre-fjeld, where it has been captured by a small lake in its full breed-

ing plumage; it also breeds in the western fjelds of Norway. In spring and autumn it is by no means uncommon on the fjord near Christiania. Nilsson says that numbers of the long-tailed duck pass the winter in the south coast of Sweden, in natural openings in the ice. Mr. Von Wright confirms this statement, and asserts that this bird dives down through the openings in the frozen water, which are, however, generally covered with a film of ice as thin as a wafer. It probably does the same in the south of Norway, as it is called here the *iis-and*, or ice duck. I have examined many specimens of this species in Norway, no two of which were alike. The colours of the plumage vary considerably when the breeding-season is over. A beautiful specimen, in its full breeding plumage, may be seen in the Zoological Museum at Christiania. When the long-tailed duck goes to the inland lakes to breed, it feeds on aquatic plants; on its return to the seacoast, it feeds on mollusks. The nest is made in the herbage on marshy ground, and is lined with the down from the bird's breast. The eggs are from six to eight in number, and are pale yellowish-gray in colour. During the time of incubation the male deserts the female, but returns to her when the ducklings make their appearance, and carefully leads them to the water.

The smew (*Mergus albellus*) is of very rare occurence in this country. It breeds in Siberia.

The red-breasted merganser (*M. serrator*).—Common in all parts of Norway. The Norwegian fishermen consider that when it makes its appearance on the coast, it is a sign that the winter is drawing to a close. Called here *langnœbbet fisk-and*, or long-billed

fish-duck. The food consists entirely of slimy kinds of fish, especially eels, in seizing which the bird is greatly assisted by its saw-like bill. The female lays from six to ten pale buff eggs, of a large size.

The hooded merganser (*M. cucullatus*) has not been seen in Norway.

The goosander (*M. merganser*).—This bird is found generally throughout Norway, and is as common on the large rivers and fjords as on the coast. Everest states, that he found its nest off Öster Risöer, on the south coast of Norway, which contained five eggs, of a reddish-white colour. Its Norwegian name is *stor fisk-and*, or great fish-duck. It appears to indulge in a plurality of wives, as it is generally followed by two or three females.

Nilsson says, that he once shot a male bird of this species, which had a kind of eel (*Zoarceus viviparus*), twelve inches long, which it had partly swallowed; the tail of the eel reached as far as the bill of the bird, and the head was already partly digested in its stomach.

Naturalists have often been puzzled to know how the female could convey her young to the water, when she made her nest in a tree. I have been informed that she seizes the young bird by the neck, swings it over her back, and thus conveys it to its natural element; returning to the nest, she repeats the process over and over again, until she has brought all her young ones to the water, when she sails away with them in triumph. The flesh of the goosander is by no means palatable, being oily and fishy, but the Norwegian peasants declare that it makes excellent soup. *De gustibus non est disputandum.*

CHAPTER XXVII.

The Fisheries of Norway.—The Herring Fishery.—The Cod Fishery.—Salmon and Salmon-Rivers in Norway.

It is well known that the principal wealth of Norway consists in her fisheries; these are to be found on the west and northern coasts. The herring fishery is carried on about Stavanger and other parts of the west coast, while the cod fishery is to be found in the neighbourhood of the Loffoden Islands, and on the west coast of Finmark. The town of Bergen maintains a considerable and lucrative trade in the export of stock-fish and salted herrings. Thousands of barrels of cod and herrings are sent every year from Bergen to Spain, Portugal, Italy, and other Roman Catholic countries, to be eaten on fast-days.

The herring fishery here commences with the new year, and lasts for three or four months; it is also carried on for a short time in autumn. As the season approaches, many precautions are taken, so that the arrival of the shoals of fish may be known as soon as they make their appearance in the shallow waters off the coast. The letting down of the nets into the sea

is an expensive business, and it is necessary, therefore, that the "take" should be large enough to pay. The men let down their nets under the orders of a head man or captain; there is, however, much shouting and noise when this is done, so that the Norwegians have a proverb to this effect, which is supposed to be expressive of any scene of noise and bustle, "*Det var som om man skulde ved med en silde-net,*" or, in English, "That was as if a herring-net should be brought up." When a cast of the net has been made, the boats approach to take out the fishes; this is accomplished by means of a large basket, fastened to a long pole. Sometimes it happens that the fishes are too numerous to be all removed at one time; then the net is fastened, which is called *en laas,* or a lock. When the net is emptied, the fishes are taken in boats to the shore, where they are salted down in barrels; an incision is first made in the neck of the fish, so as to enable the brine to penetrate easily. The salt used is of the coarsest kind, and it requires a very strong stomach to digest an ordinary salted herring in Norway. Sometimes a Norwegian peasant will bring out a barrel of herrings that has been kept a year, to knock off the head and pour off the brine; the stench that arises is abominable, but the worthy man eyes his treasure as if it were the most delicious dainty.

The herrings taken off the Norwegian coast appear to be smaller in size than the English fish of the same kind. This is, perhaps, owing to the fact that the meshes of the English fisherman's net must, according to law, be of a certain size, so as to allow the smaller fishes to pass through and escape; whereas, no restriction of the kind is imposed on the Norwegian

fisherman. This is a mistake, for the herring is a timid and fanciful fish, and abandons certain parts of a coast where it is too much persecuted. For this reason, it frequently happens that the herring fishery in this country varies very much, and is not so good in some seasons as it is at others.

The herrings make their appearance off the west coast of Norway, in immense shoals (*stimle*), by about the beginning of January, and are pursued by whales, seals, dolphins, and other large fishes, as well as by gulls and other birds, that devour great quantities of them. The herring gull (*Larus argentatus*) is always a welcome bird to the fisherman, who knows by its appearance that the herrings are not far off. This species of gull skims the surface of the water, and preys on the young herrings that, in their sportive gambols, come up to breathe, or to throw themselves into the air.

I may mention, by way of giving an estimate of the importance of this fishery, that no less than 800,000 barrels of salted herrings are put on one side during a single season, extending over three or four months, to say nothing of immense numbers that are eaten all over the country while they are fresh. The barrels of salted herrings are exported from Bergen, Stavanger, and other towns on the west coast, not only to ports in the Mediterranean, but also to many places in Norway, for the peasants in this country live for the most part on salted herrings during the winter months. Fresh herrings may be purchased at Christiania, during the season, for about fourpence the score. The Norwegian red herring is a small fish, and is generally eaten in a raw state; it is very inferior in flavour to the Yarmouth bloater.

As the herring fishery, in Norway, is carried on during the most inclement part of the winter, it is attended with great hardships. Many thousands of poor fishermen assemble on the west coast, and accommodation for them is but scanty. They live in huts, and are much exposed to the inclemency of the weather, for the climate of that part of Norway is damp, and generally foggy. These poor fishermen are a quiet and orderly race, of thrifty habits, and the hard labour in which they are engaged from morning until night allows them no time for quarrels or disputes.

The cod fishery is carried on off the Loffoden Islands, a group extending from Bodö, the capital of Nordland, to some distance beyond Tromsö, the capital of Finmark, or Norwegian Lapland. Their southern extremity is twenty miles from the mainland, which the islands gradually approach, until further northwards they form a channel. The people of Bodö, Tromsö, Hammerfest, and other places in the north, almost depend for their subsistence on the fisheries. About 16,000 fishermen assemble on the Loffodens by about the beginning of February, when the fishing for cod commences, and lasts until the middle or end of April. The cod are caught in the west fjord, off the east coast of the Loffodens. The depth of water can be sounded at a distance of fourteen miles from the islands, where it varies from 200 to 300 fathoms. The fishing "banks," as they are called, which are, in fact, terraces under water, are nearer the islands. These banks, or ledges, which are perpendicular, have no gradual slope, and are three in number. The first lies at a depth of 30 or 40 fathoms, when it drops

suddenly to the second, which is at a depth of about 40 or 50 fathoms; again, the third bank drops suddenly, and without any slope whatever, to a depth of about 120 fathoms. South of these natural ledges, there is no bottom at 300 fathoms. The cod resort to these natural terraces to spawn, and because there they are protected from the winds and waves. When caught, the cod are salted or dried, and then become the stock-fish of commerce. They are then conveyed in *jagts*, or smacks, small vessels with one large sail, to Throndjem, Christiansand, Bergen, and Stavanger, to be ready for exportation. The fishery produces from sixteen to eighteen millions of cod every season, besides 20,000 barrels of cod-liver oil, and 6000 barrels of cods' roe.

Cod-liver oil is very cheap in Norway, as well as pure and good, for its yield is so great that it is not worth while to adulterate it; the best oil is brown in colour. The people on the whole of the north-west coast of Norway depend on the cod-fishery for their livelihood. The trade is one of barter; the merchant receives his stipulated amount of fish from the fishermen, and pays in kind. The latter are often deeply in debt to the former; that is, they receive their payments in goods in advance, and are then unable to pay in fish. This is a pernicious system; it prevents thrifty habits, with attendant evils, among the fishermen.

The famous Mahlström is in the neighbourhood of the Loffoden Islands. This celebrated whirlpool or current has been greatly exaggerated; the stories of ships and whales having been sucked in by it are simply fabulous. It is situated between Moskenö, an

island of the Loffoden group, and Loppod point. The swiftness of the current depends on the wind and state of the weather and tide. With a boisterous west wind, the current runs constantly to the eastward, both with the ebb and flood; if the sea then rises, the velocity of the current increases, and the sound is rendered unnavigable. During winter storms, and even when a strong gale is blowing in summer, it is not safe to go through the channel; but with a fair wind, and in fine weather, there is no danger. There is at no time a vortex, although ships caught in the current may be drifted on to the rocks, and be lost; to avoid the most dangerous part, it is necessary to keep to the Loppod point. So little is thought of the Mahlström by the hardy northern mariners, who are acquainted with it, that the frail barks of the country pass and repass at all states of the tide, except under the circumstances previously described. Small boats actually fish in the centre of the channel. Far from drawing in great whales, the fish sport about in the current; and experienced fishermen, knowing this, lay down their lines there; for it is certain that all kinds of fish, whether in fresh or salt water, prefer localities where there are eddies or currents.

The Norwegians are great epicures as regards salt-water fish, which must be brought to their doors alive, otherwise, they will not purchase. The small cod-fish only is eaten at a gentleman's table, and the larger ones are considered only fit for poor people. "There is an art in the roasting of eggs," and certainly nothing can be more delicious than a young cod, purchased alive at one's door in a Norwegian town, then killed and cleaned, boiled in water with a

few pinches of salt, and served with a sauce, of which sour cream forms the principal ingredient. Soles are almost unknown in Norway, and I never saw more than a single pair of that popular English fish in the Christiania fish-market. On inquiring their price of the old woman to whom they belonged, her answer was, "Oh, take them for nothing if you like, they are nasty sea-devils!" Although the sole is so scarce here, the common flat fish is abundant enough. The whiting and mackerel are also very common and cheap, the latter especially so, as it is only eaten by poor people, from the popular belief that it preys on the bodies of those who have been drowned at sea. A short time since, some sailors who perished in a shipwreck in the Christiania-fjord, were found to have been half eaten by mackerel; the fish has been very unpopular in the town ever since. A horrible story is related of a man who, bathing in the Christiania-fjord, was set upon and devoured by a shoal of mackerel; he was seen struggling in the water, with his arms and the upper part of his body covered with mackerel as thick as bees.

Crabs are very common in some of the Norwegian fjords, and a favourite dish in this country is a hot crab-pie. The crab is carefully shelled, and is then placed in a dish covered with a thick layer of puff-paste; this is a very appetizing dish.

Lobsters are found in any quantity off the south coast of Norway, and a soup made of young lobsters is delicious—a dainty dish even for Lucullus; thousands of lobsters are sent annually from Laurvig, a small seaport in the south of Norway, to the London markets. I have frequently purchased live lobsters in

the Christiania market for sixpence per dozen. Only the small lobsters are eaten here, the larger and coarser ones are exported; considering the difference of price between Norway and London, the profits of the Norwegian lobster-trade must be enormous.

The dolphin is common in some of the larger Norwegian fjords, and is eaten by all classes. The flesh is firm, and has somewhat the flavour of fresh pork. The common seal is also common in the Norwegian fjords. I have often seen seals basking in the sun on the low rocks in the fjord near Christiania; they shuffle off to the water as soon as any one approaches. Whales are occasionally seen off the coast of Finmark; the same may be said of sharks during the summer months, on the south coast of Norway.

While on the subject of fishing, I may just mention a peculiar method of capturing fish, which is common to Norway and Scotland. The fishes are caught at night by a trident, or barbed spear, called in Scotland a "leister," and in Norway "*en lyster.*" A bright fire of coals is made in a grating in the bow of a boat, and the light attracts the fishes, which come to look at the blaze, when a man stands ready with the leister, so as to spear the fish as it comes into view.

The traveller in this country who is fond of novelty, may just ask for and taste a morsel of *rak-öret*. This is literally rotten fish. It is generally made of trout, which is buried in the ground until it is in a state of putrefaction, when it is taken up and eaten. The flavour may be imagined, but cannot be described; it is, however, considered a great delicacy by certain Norwegians, even of the better class.

Although the English sportsman who visits Norway

for the purpose of bear or reindeer hunting, may, perhaps, have to return home disappointed with his luck, such is not likely to be the case, if he is fond of salmon-fishing, and comes here to follow that pursuit. This may be called, *par excellence*, the national sport of Norway. Its numerous and large rivers abound with fine salmon; large sea-trout are to be caught at the mouths of many of the rivers running into the fjords; and delicious salmon-trout (*Salmo trutta*) may be purchased, in season, at any market-town; trout are plentiful in nearly all the rivers and lakes. The following are the principal salmon-rivers in Norway. The Norwegian word *elv* signifies river.

Salmon-rivers near Christiania.

It unfortunately happens that the fishing near the capital of Norway is hardly worth having. Some salmon are to be found in the Drammen Elv, near the town of that name, and large sea-trout are to be caught at its mouth.

The Vormen Elv, which runs into the Glommen at Lake Mjösen, has salmon in it, as also the Glommen itself.

Excellent trout-fishing is to be had in the small lakes, which are situated at a distance of from fifteen to twenty English miles from Christiania. Lake Öieren may be specially mentioned.

Excellent grayling-fishing may be had in the Vormen, near Eidsvold, about forty miles from Christiania, and which can be reached by the railway.

The pike-perch, which grows to a large size, some twenty pounds or more, is to be met with in Lake

Öieren. In this inland lake, at times, there is also some good wild-duck shooting, as well as snipes. Good woodcock shooting may be had near Christiania, but there are no *ryper*, elk, or reindeer.

The South of Norway.

The fishing in the south of Norway is not to be compared with that in the north.

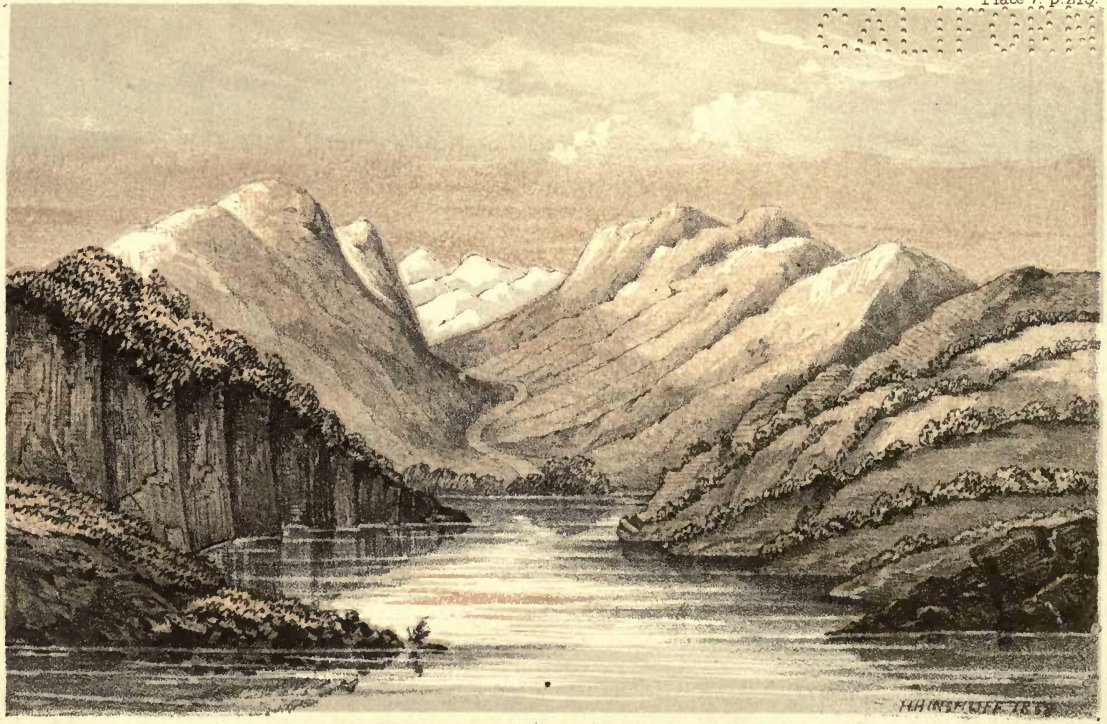
The Torrisdals Elv, which runs into the sea near Christiansand, contains some good salmon. The same may be said of the Mandals Elv. The Logen, near Laurvig, is the best salmon-river in the south of Norway. Some good fishing may be had in some of the rivers between the towns of Mandal and Stavanger.

The shooting in the south of Norway is very indifferent. Black game may occasionally be had, and an English friend, who was staying for a time at Christiansand in his yacht, informed me that he had had good sport in the vicinity with the "brown bird." The expression was somewhat indefinite; perhaps he meant the *hjerpe*.

Thelemarken.

There are some good salmon-rivers in this beautiful district, and trout are plentiful in the lakes. Barnard, in his 'Sport in Norway,' says, "The river running into the lake (Bandags Vand) here is a magnificent trout-stream, and has some pools which an ardent fisherman will rejoice to wet his line in. Very large trout can be taken, and those fond of spinning will find good sport by rowing to and fro across the mouth of the river where it debouches into the lake."

The *rak-öret*, mentioned before, is mostly made from



Vincent Brooks, Day & Son, lith.

LITTLE MJÖSEN—VAND.

trout taken from the Mjös Vand, in this district; this lake is 3000 feet above the level of the sea. The trout in the immediate neighbourhood are as red as salmon.

The shooting in this part of Norway is excellent. *Ryper* are plentiful in the fjelds, as also reindeer; and bears are numerous.

Söndre Bergenhuus.

This amt, of which Bergen is the capital, contains many good salmon-rivers, which are easy of access to English travellers, as there is a regular summer communication between Hull and Bergen by Messrs. T. Wilson and Sons' steamers.

The Steindals Elv contains salmon, but they are small in size. A steamer from Bergen lands passengers at Ostensjö, within a walk of the Steindals. The Ostudfos, one of the highest waterfalls in this country, is in the neighbourhood.

The Vik Elv, which runs into the upper end of the Hardanger-fjord, is a small but good river. The Voring, one of the most magnificent waterfalls in Norway, if not in Europe, may be visited from hence.

The Vosse Elv and the Bolstedören Elv are excellent salmon-rivers north of Bergen, and contain large fishes.

Reindeer are found in the Hardanger fjelds, but are not so common as in the Fille and Dovre fjelds.

This part of Norway is celebrated for its bold and romantic scenery.

Nordre Bergenhuus.

In this amt is the Sögne-fjord, into which many

rivers run, all of which, more or less, contain salmon; the Lierdals Elv and the Aardals Elv are the best.

The Aurlands Elv runs into the Aurland-fjord, a branch of the Sögne-fjord, and contains some good salmon. Large sea-trout may be found at the mouths of the three last-mentioned rivers.

The Gudvangen is an excellent river, and possesses the advantage of having a good station near it.

The general shooting in this amt is good. There are plenty of *ryper* in the fjelds, some capercaillie in the woods; while, to those who are fond of adventure, a bear-hunt will afford good sport, for Bruin is rather common here.

Romsdal.

The English tourist or sportsman who lands at Christiania can proceed to this amt by road, visiting Lake Mjösen, and the lovely valley of Gudbrandsdal, on his way northwards. The Gudbrandsdal may be considered the best part of Norway for general sport. Its rivers and lakes contain salmon and trout; while good reindeer-shooting may be had in the mountains. The feathered game are, perhaps, more numerous in Gudbrandsdal than anywhere else in this country. At the mouth of the Romsdal-fjord is Molde, at which the steamer from Bergen to the north lands passengers.

The Rauma Elv is the best river in this amt; it also contains trout of a large size. The salmon in this river run large; indeed, it may be said of salmon-fishing in general in Norway, *the farther north, the larger the fish.*

The Sundals Elv, which rises in the Dovre-fjeld, is another good river. The same may be said of the

Eridsfjord Elv, which falls into a branch of the Langefjord. Further north is the Surendal Elv, a first-class salmon river; further north of which again is the Bœvre Elv. All these rivers abound with fine trout.

Söndre Throndjems Amt.

The Guul Elv, which falls into the Throndjem-fjord a few miles below that city, is one of the most celebrated salmon-rivers in this country.

The Nid Elv, near Throndjem, has some first-class salmon in it. Below the Leer-fos is a very pretty waterfall.

The salmon in many of the rivers in this amt are very large; and it is by no means uncommon to catch a fish weighing forty pounds. The reindeer-shooting in the Dovre-fjeld, which is in Söndre Throndjems Amt, is the best sport of the kind to be had in Norway. Here, also, is the best *ryper* shooting. On Hitteren, an island off the coast near Throndjem, there are some red deer, the only place in Norway where they are found. Permission could be obtained, no doubt, for a day's sport there. Bears may occasionally be met with in this amt.

Nordre Throndjems Amt.

The Namsen Elv, the most celebrated salmon-river in Norway, is in this amt. It rises in the Nams Vand, a lake 1300 feet above the level of the sea; and the river itself is reached by steamer from Throndjem. The whole of the fishing on this noted river has been leased to Englishmen, a hint which the angler will probably understand. The fishing below the Fiskumfos is supposed to be the best; and here a salmon was

once caught which weighed sixty pounds. The Sanddola Elv, which runs into the Namsen, is a good river for salmon.

Good *ryper*, capercaillie, and black-game shooting, may be had in this amt. Here, also, are numerous herds of reindeer and many bears. An encampment of Lapps may sometimes be met with in this amt.

Nordland.

Comparatively speaking, but little is known of the fishing in this amt. It is said to contain many excellent rivers, but owing to the scarcity of roads, and the extensive forests, it is almost a *terra incognita*.

The Beiren Elv is a small but good river, in the neighbourhood of Bodö, a town on the coast of Norland. The steamer from Throndjem stops at Bodö; and the Loffoden Islands may be visited from thence.

The shooting in this amt is very poor. There are plenty of bears, but they keep in the recesses of the forest, and very seldom venture forth.

Finmark.

This is the most northern amt in Norway, and is better known to English people by the name of Norwegian Lapland.

The Alten Elv.—This noted salmon-river was visited a year or two ago by the Duke of Edinburgh, accompanied by the Duke of Roxburgh, to whom it afforded some excellent sport. The Alten falls into the fjord of the same name. A Norwegian friend, who resides in Finmark, informs me that he has caught salmon weighing forty pounds in this river, which has about

twenty-five English miles of good fishing in it, the whole of which is leased.

The Jacobs Elv falls into the Varanger-fjord in East Finmark, and is another good river. The Tana Elv divides Norwegian from Russian Lapland, and contains plenty of salmon. Char are found in the Kemi Elv, near Hammerfest, which take the fly.

Excellent *ryper* shooting may be had on some of the islands off the coast of Finmark, and bears are numerous on the mainland.

CHAPTER XXVIII.

The Climate of Norway.—Its Effect on Vegetation.—Wild Berries.—Vegetables.—Trees.—Minerals.

THE short Norwegian summer is oppressively hot, while the long and dreary winter is cold in proportion. The climate is, however, by no means unhealthy, and suits Englishmen very well, whose constitutions are not delicate. In winter, the cold here is intense. In the northern parts of the Scandinavian peninsula the glass often marks 40° below the zero of Fahrenheit. It is a peculiarity of this intense cold that it is not felt so much as one might suppose, unless a person is travelling or walking quickly. The cold appears to have the power of freezing the wind; and were it not for the appearance of ice and snow in all directions, people would hardly know that the weather was so cold. When the atmosphere is in this state, although the cold is not so perceptible as one might think, yet if a person were to ascend to the top story of a house, and throw down from thence a basin of warm water, it would be a lump of ice by the time it reached the ground.

The sea on the western coast of Finmark is never frozen, because it is under the influence of the Gulf Stream, which keeps it at a moderate temperature throughout the most severe winters. The Baltic is frozen in winter, because its waters are shallow, and many large rivers flow into it, thereby lowering the temperature. The Christiania-fjord is never frozen, except near the town itself, because its waters are deep; and the rivers which run into it are small and unimportant. The rivers of Norway are always frozen in winter.

The climate of Christiania is pleasant throughout the year; its temperature is equable; and, although the cold in winter is severe, it is not disagreeably so, on account of the dryness of the air.

Agriculture is rather in a primitive condition here, and the *bonde*, or peasant farmer, does the best he can with his few acres, which yield a scanty subsistence for himself and family. Very little wheat is grown in this country; it is generally imported from Spain, Germany, and Russia. Barley and rye, as well as oats, are extensively produced. Vegetation is very rapid here, for the days are so long, and the nights are so short, in these northern latitudes, that nature is always making progress. It is said that barley will grow two-and-a-half inches in the course of twenty-four hours in the extreme north of Norway. It is planted and harvested in the short space of ten weeks. In Finmark, however, the crops often do not ripen at all.

The climate of this country has a peculiar effect on all flowering plants. The flowers are brighter in colour, and the scent is much more powerful than in

England; on the other hand, although various fruits ripen out-of-doors here, their flavour is much inferior to those of the same kind grown in more southern countries.

Wheat does not grow further north than 64°, oats up to 68½°, rye up to 69°; barley as high as 70°. In the latitude of the North Cape, the sun is above the horizon from the middle of May to the end of July. During that time vegetation is constantly progressing, and it may be remarked that the grass grows beneath the snow. The sun is below the horizon from November 17th to January 26th. There is no intermediate season between winter and summer. By the end of April, the season begins to change from ice and snow to excessive warmth, and in the middle of May the earth is covered with a green mantle, and the trees are in leaf.

The common blue hyacinth, the primrose, the snowdrop, the violet, and the lily of the valley grow abundantly in the woods round Christiania. Various species of ferns are common in different parts of the country, and the following plants, among others, may be found:—*Pinguicula villosa, Triticum violaceum, Epilobium origanifolium, Stellaria alpestris, Equisetum variegatum, Woodsia ilvensis, Ranunculus nivalis, Saxifraga cotyledon, Equisetum hyemale,* and *Woodsia hyperborea, etc.*

Professor Blytt, an eminent Norwegian botanist, who is now no more, has found in the Dovre-fjeld alone, no less than 200 mosses, 150 lichens, 50 algæ, and 439 phanerogamous plants and ferns.

There are no shady shrubberies in Norwegian country districts, as there are in England. No doubt the

severe winter would destroy our English evergreen plants, and so they are not grown at all in Norway. The people in towns contrive to grow green shrubs in their rooms, among which a common lily appears to be preferred, which afford a pleasant relief to the eyes, which often smart in winter from constantly looking at the snow. I have even seen large green trees growing in rooms, in large tubs, in this country, reaching nearly as high as the ceiling, and which would be left to grow in the open air in England. In the drawing-rooms of houses, a moveable trellis-work may often be seen, which is placed near the window, and is covered with deliciously green ivy; then the windows are generally full of plants that are green in winter, such as myrtle, box, etc. Almost every kind of everlasting flower may be met with in Norwegian towns, but I fancy they come from Germany. These everlasting flowers are much used in Norway in the making of wreaths, *immortelles*, and crosses, with which graves are decorated.

The Wild Berries of Norway.

Bilberry (*V. myrtillus*).—Grows in a wild state over the whole of this country, and is sent in barrels to England, where it is sold as coming from Russia. Norwegian name, *blaabær*. It is said in Norway that the brown bear at times feeds voraciously on this berry, and so sets his teeth on edge by its acidity, that he is obliged to turn to a flesh diet by way of a change, when, of course, he commits extensive inroads on the farmers' cattle.

Cloudberry (*Rubus Chamæmorus*).—Grows plentifully on all marshy grounds. It is common in Fin-

mark, and is called *multebær* here. The plant has a leaf like a strawberry, and the fruit is found at the end of an upright stalk; it is pale buff in colour, and somewhat resembles a mulberry in shape. It is eaten with cream, and has a pleasant flavour after one is accustomed to it; while it is said to be an excellent antiscorbutic. It grows in latitude 71°. The Norwegians are very partial to this berry, and eat it with avidity whenever they can get it. It is rather dear, and but little of it comes to market; what does, is immediately bought up.

Mulberry (*Morus alba et nigra*).—Both kinds grow in the south of Norway.

Gooseberry (*Ribes Grossularia*).—Grows wild here, but not in the extreme north.

Raspberry (*Rubus idæus*).—Called in Norway, *bringebær*. It grows wild up to latitude 70°.

Strawberry (*Fragaria vesca*).—Norwegian name, *jordbær*. Is found in a wild state all over Norway. It is frequently preserved, and eaten with roast meat.

Red currant (*Ribes rubrum*).—Is found wild in all parts. Called here *ribs*.

Elder (*Sambucus nigra*).—Grows as far north as Throndjem.

Cherry (*Prunus avium*).—Grows abundantly in a wild state in the west of Norway. The Norwegians are very fond of cherry-brandy, which they call here *kirsebær-brandeviin*.

Vegetables and Fruits.

Ordinary vegetables do well in this country. Green peas are said to grow three inches in twenty-four hours in Finmark. Potatoes grow in all parts, even in East

Finmark, and in the Loffoden Islands. This useful tuber was first introduced into Norway in 1770, by the instrumentality of Caroline Matilda, Queen of Norway and Denmark, sister to George III. of England. Cabbages, turnips, carrots, onions, and peas flourish in all parts. In winter, green vegetables are not to be had at any price; it is customary, therefore, to store up cabbages and other vegetables as winter approaches. Dry peas form a favourite dish in Norway; they are soaked in water for some hours, and are then stewed in cream. They are very nice for a change, but one soon tires of them.

Of fruits, apricots ripen as far north as Throndjem; the same may be said of the peach. Apples ripen in gardens up to lat. 65°. Several varieties of pears and plums are to be met with in this country. Grapes ripen against walls, as well as the quince, in the south of Norway, but not when the winter sets in early.

Of nuts, walnuts ripen as far north as Throndjem; the red and white filbert only in the south. The chestnut sometimes ripens near Christiania.

Trees.

The oak grows in many parts of Norway, but, as a general rule, is not much higher than a shrub. A few stunted oaks may be seen in the gardens surrounding the royal palace at Christiania. At Valen, in Söndhordland, is an oak 127 feet high. The Norwegians speak reverently of this tree, and it is certainly a natural curiosity.

The alder is common on the banks of some of the southern rivers.

The ash is found as far north as Throndjem. The

mountain-ash grows in all woods of deciduous trees; and the berries are extremely welcome to small birds during the long and severe Norwegian winters.

The beech is by no means common here, and is found only in the south. The purple beech is occasionally seen in gardens.

The birch is common everywhere. Its limit in the Dovre-fjeld is 3750 feet above the level of the sea; at that height it is little larger than a bush. This tree is held in great esteem in Norway; and at Christmas the peasants, in some places, offer libations to it; the roots are made into bracelets and other fancy articles. The peasants also exhibit considerable skill in carving pieces of birch-wood, which occupies their long winter evenings. Most of the household furniture in this country is made from the wood of the birch, and it is largely consumed as fuel in the huge Norwegian stoves. The Lapps in Finmark make their beds of birch-twigs, which are almost as springy as a mattress.

The elm grows among other trees in the woods, considerably further north than Throndjem.

The wild holly is common on the west coast; the same may be said of the honeysuckle. The horse-chestnut is seen in gardens as far north as Throndjem.

The ivy grows wild near Bergen, and in some other places not far north.

The juniper is to be found all over the country; its limit above the level of the sea being much the same as that of the birch.

The lime grows in sheltered spots in the south of Norway. A fine row of limes may be seen near Agershus Castle, Christiania.

The larch grows in a cultivated state in the extreme south of Norway.

The maple may be met with in Thelemarken.

The spruce-fir is the most common tree in Norway, and large forests of it are to be found, but not within the Polar Circle. The same may be said of the Scotch fir, with the addition, that it is to be seen in East Finmark.

Many species of willow are to be found in all parts of Norway, even in Finmark.

The yew is only to be met with in the extreme south of this country.

Minerals.

The minerals of Norway are iron, copper, silver, cobalt, and nickel.

Iron is chiefly found in the south. The ore is very pure, and produces 95 per cent. of metal. Coal has not been discovered in this country, and, as a natural consequence, mining operations are yet in their infancy; as, however, one or two English ironmasters are turning their attention to Norway, it is very possible that there may be a change before long.

Copper is found in the neighbourhood of Roraas, where the mines are extensive; also in the valley of the Alten, in West Finmark.

Silver is principally found in the valley of the Laagen Elv, at Kongsberg; and, as many changes have taken place in the mines, some information about them may be interesting. The first miners came from Germany, and are said to have been an upright and thrifty set of people. The discovery of the precious metal was made by a farmer's boy, who accidentally

kicked over a piece of the glittering ore, as it lay on the ground, and, pleased with the brilliant stone, he carried it home with him, when some scientific person discovered its worth. The mines were worked for many years at a loss; but about 1768 they yielded a handsome profit. Sometimes they have been worked on public, and sometimes on private account. In 1833, the mines were worked by the State, at a profit of £80,000; a large sum for a poor country like Norway. They are now carried on under the control of three directors, who employ about 400 hands. It is said that the ore is purer than that of any other country in Europe.

Cobalt has been found near Drammen; and nickel near Espedalen.

Gold is said to have been found near Eidsvold, but not in any quantity.

W. H. Fitch. del.

NORWEGIAN FLOWERS.

CHAPTER XXIX.

The Flora of the Dovre-fjeld.—The Ferns of Norway.

It is said that all the alpine flora of the North may be found in the Dovre-fjeld. The best stations for botanists in this range of mountains are Tofte, Jerkin Kongsvold, and Drivstuen. The last mentioned is in Drivdalen, watered by the Driv Elv; and here, says Professor Blytt, "nearly all the alpine flora seems to have concentrated." The limit of birch varies from 3700 to 3750 feet above the level of the sea. I have generally adopted the names given to plants by Linnæus. The figures placed after each species refer to the numbers of the plates in the 'Flora Danica.'

Ranunculaceæ.

Thalictrum alpinum; 11.—Common on high grounds, but does not reach the birch-limit.

T. simplex; 244.—Much the same as the preceding.

Anemone vernalis; 29.—Common all over the fjeld.

Ranunculus reptans; 108.—Common, and up to the birch-limit. Found near Kongsvold.

R. platanifolius; 3.—Common in Drivdalen.

R. glacialis; 19.—Common up to the regions of perpetual snow.

R. nivalis; 1699.—Found close to the perpetual snow, side by side with the *Phippsia algida, Saxifraga oppositifolia,* and *Draba alpina.* The yellow flower imparts its tint to the grounds on which it grows.

R. pygmæus; 144.—This small plant grows up to the birch-limit.

R. hyperboreus; 331.—On marshy ground on Harbakken.

R. auricomus.—Near Fogstuen and Kongsvold.

R. polyanthemos; 1700.—In Drivdalen and by Drivstuen, as high up as the limit of fir.

R. acris.—Common on high ground.

R. repens.—By Jerkin, but does not grow as high as the birch-limit.

Caltha palustris; 668.—Is found above the birch-limit; *e. g.* at Harbakken.

Aconitum lycoctonum; 123.—Grows up to the limit of birch.

Actæa spicata; 498.—Between Kongsvold and Drivstuen.

PAPAVERACEÆ.

Papaver nudicaule; 41.—Found in the northern part of the fjeld.

FUMARIACEÆ.

Fumaria officinalis; 940.—At Tofte, and in Drivdalen.

CRUCIFERÆ.

Barbarea vulgaris.—Above the limit of fir, near Kongsvold.

Turritis glabra; 809.—Between Kongsvold and Drivstuen.

Arabis alpina; 62.—Over the whole fjeld, and above the birch-limit.

A. hirsuta; 1040.—Here and there in Drivdalen.

A. thaliana; 1106.—By Kongsvold and Tofte.

A. petræa; 1392.—Scarce.

Cardamine bellidifolia; 20.—Common as high up as the snow.

C. amara; 148.—By Jerkin and Kongsvold.

C. pratensis; 1039.—As the foregoing.

Draba alpina; 56.—Over the whole fjeld, up to the perpetual snow.

D. muricella.—Very rarely to be met with. Has been found on Harbakken and on Gederyggen, near Jerkin.

D. hirta.—Common everywhere on the fjeld. The same may be said of *Draba incana.*

D. Lapponica; 142.—The earliest flowering plant on the fjeld.

Thlaspi arvense; 973.—Common.

Camelina sativa; 1038.—Scarce.

Brassica campestris; 550.—By Tofte, Bergsgaard, and Lie.

Sinapis arvensis; 753.—In fjelds near Lie.

Subularia aquatica; 35.—On the banks of the Volasö. The word *sö* in Norwegian means an inland sea or lake.

VIOLARIEÆ.

Viola palustris; 83.—Common, and above the limit of birch.

V. umbrosa.—Common in Gudbrandsdalen, one of

the most lovely valleys in Norway. The same may be said of *Viola hirta*.

V. mirabilis; 1045.—On the mountain sides of Drivdalen, and on Harbakken in places not exposed to the sun.

V. canina.—Scarce, found just above Jerken.

V. montana; 1329.—In small woods in Drivdalen.

V. arenaria.—Common by Fogstuen, Jerkin, and Kongsvold.

V. biflora; 46.—Common everywhere.

V. tricolor.—Found by Jerkin, Kongsvold, and Tofte.

Droseraceæ.

Drosera rotundifolia; 1028.—On the roadside over Harbakken.

Parnassia palustris; 584.—Common, all over the fjeld.

Polygaleæ.

Polygala vulgaris; 516.—By Bergsgaard and Tofte.

P. uliginosa.—More common than the last.

Caryophylleæ.

Silene acaulis; 21.—As high up as the perpetual snow.

S. inflata; Smith, Flora Brit. 467.—Common, but not beyond the birch-limit.

S. rupestris; 4.—Common, and above the birch-limit.

Lychnis viscaria; 1032.—Beyond the fields by Tofte and Rustgaard.

L. sylvestris.—Common on the fjeld.

L. apetala; 806.—On the road between Lie and Fogstuen.

L. pratensis; 792.—By Tofte and Kongsvold. A variety, with red flowers, is found in Drivdalen.

L. alpina; 65.—Common.

Spergula arvensis; 1033.—By Tofte.

S. saginoides; 1577.—Common all over the fjeld.

Sagina procumbens; 2103.—By roads and mountain sides all over the fjeld.

Stellaria nemorum; 271.—In shady places all over the fjeld.

S. media; Smith, Brit. 2, p. 475.—By the side of the *sæters* all over the fjeld. The *sæter* is a small cabin where the peasant girls live in summer to look after the cattle on the mountains.

S. graminea; 2116.—Found here and there on Jerkindshö and by Kongsvold.

S. longifolia.—Near Kongsvold.

S. alpestris.—Common up to the limit of the willow.

S. crassifolia, β. subalpina.—On marshy grounds by Jerkin.

S. uliginosa.—In woody places in Drivdalen.

S. cerastoides; 92.—Very common, and up to the perpetual snow.

Alsine stricta.—On marshy ground, up to perpetual snow.

Stellaria biflora of Linnæus.—Same as the foregoing, but on dry ground.

Alsine rubella; 1646.—In Drivdalen, from Kongsvold to Vaarstien.

Arenaria serpyllifolia; 977.—Near Tofte.

Cerastium alpinum; 6, *β. glabratum;* 979.—Common all over the fjeld; *β. glabr.* common by Fogstuen.

C. vulgatum; 1645.—Common by roads and *sæters.*

GERANIACEÆ.

Geranium sylvaticum; 124.—Common above the birch-limit. Varieties with pink and white flowers.

G. pratense.—By Tofte; uncommon.

G. cicutarium; 986.—Near Rise in Drivdalen.

BALSAMINEÆ.

Impatiens Noli-me-tangere; 582.—By Drivstuen in Drivdalen.

OXALIDEÆ.

Oxalis Acetosella; 980.—Grows up to the birch-limit.

LEGUMINOSÆ.

Anthyllis vulneraria; 988.—Under Harbakken, a little below the limit of birch.

Trifolium medium; 1273.—By Tofte, where it disappears just below the birch-limit.

T. pratense; 989.—Common as far up as Jerkin and Fogstuen. The same may be said of *T. repens;* 990.

Lotus corniculatus; 991.—Up to the birch-limit.

Phaca frigida; 856.—Pretty common everywhere.

P. Lapponica.—Common from Tofte to Drivstuen.

P. oroboides; 1396.—Common on the hills about Tofte and in Drivdalen.

Astragalus alpinus; 51.—Common all over the fjeld.

Vicia sylvatica; 277.—Between Kongsvold and Drivstuen in Drivdalen.

V. Cracca; 804.—Over the whole fjeld to the birch-limit.

V. sepium; 699.—By Tofte, Jerkin, Kongsvold, and in Drivdalen.

Lathyrus pratensis; 527.—At Tofte, below the birch-limit.

ROSACEÆ.

Prunus padus; 205.—Found at Drivstuen, in Drivdalen, in August.

Spiræa ulmaria; 547.—Common in Drivdalen.

Dryas octopetala; 31.—Here and there on Gederyggen, near Jerkin; more common in meadows near Kongsvold.

Geum rivale; 722.—Common up to the willow-limit.

Rubus Idæus; 788.—Common in Drivdalen.

R. saxatilis; 134.—Over the whole fjeld.

R. Chamæmorus; 1.—Common in marshy places over the whold fjeld. The fruit is called *multebær* here, and is held in high estimation; it is an anti-scorbutic. The plant has a leaf like a strawberry; the fruit is pale buff in colour.

Fragaria vesca.—By Tofte and Kongsvold.

Potentilla nivea; 1035.—Here and there in the fir-region between Drivstuen and Rise, in Drivdalen.

P. Norwegica; 171.—Found by Tofte as high up as barley grows.

P. Tormentilla; 589.—Common everywhere.

P. aurea; 114.—Common up to the perpetual snow.

P. argentea; 865.—By Tofte, and between Kongsvold and Drivstuen.

P. anserina; 544.—By Tofte and Rustgaard.

P. Comarum; 636.—Here and there in marshy places.

Sibbaldia procumbens; 32.—Common up to the perpetual snow.

Alchemilla vulgaris; 693. Common everywhere. A variety *β. montana* is to be met with by Tofte.

A. alpina; 49.—Found up to the perpetual snow.

Rosa villosa; 1458.—Below Rise, in Drivdalen.

R. cinnamomea; 1214.—On the south side of the mountain by Lie.

Mespilus cotoneaster; 112.—Near Bergsgaard, and in Drivdalen, up to the birch-limit.

Sorbus Aucuparia; 1034.—In Drivdalen, but not found between the fir and birch-limit.

Onagrarieæ.

Epilobium angustifolium; 289.—Common up to the birch-limit.

E. montanum; 922.—Found in Drivdalen, up to the fir-limit.

E. palustre; 1574.—By Tofte.

E. alpinum; 322.—Common to the birch-limit.

E. orangifolium.—Found occasionally near Fogstuen, and more common by Drivstuen, in Drivdalen.

E. nutans; 1387.—On swampy places between Lie and Fogstuen.

Circæa alpina; 1321.—Common to the birch-limit.

Haloragieæ.

Myriophyllum spicatum; 681.—Found in Volasö.

Callitriche verna; 129.—On low grounds.

C. autumnalis; In Lake Vola, or Volasö.

Hippuris vulgaris; 87.—In a swamp near Jerkin; in a swamp between Kongsvold and Drivstuen.

Tamariscineæ.

Myricaria Germanica; 234.—On the banks of the river by the mill near Tofte.

PORTULACEÆ.

Montia fontana; 131.—Common in damp places up to above the birch-limit.

PARONYCHIEÆ.

Scleranthus perennis; 563.—Near the birch-limit, above Tofte.

CRASSULACEÆ.

Sedum Rhodiola; 183.—Common over the whole fjeld above the birch-limit.

S. album; 66.—Near Tofte.

S. acre; 1644.—The same as the last.

S. annuum; 59.—Over the whole fjeld, but not above the birch.

GROSSULARIEÆ.

Ribes rubrum; 967.—In Drivdalen. Called here *ulve-bær*, or wolf-berry. In Norway wild animals, such as bears and wolves, often devour large quantities of wild berries when they are ripe.

SAXIFRAGACEÆ.

Saxifraga oppositifolia; 34.—Common up to the perpetual snow.

S. cotyledon; 241.—Here and there in Drivdalen, from Vaarstien to Drivstuen.

S. cæspitosa; 71 and 1388.—Occasionally over the whole fjeld, up to the perpetual snow.

S. petræa.—Here and there, all over the fjeld, but rarely above the birch-limit.

S. cernua; 22 and 399.—Up to the perpetual snow.

S. rivularis; 11.—On high ground.

S. nivalis; 28.—Here and there all over the fjeld, especially by Kongsvold, and in Drivdalen.

S. hieracifolia; 2, 301.—By Storhö, above Tofte.

S. stellaris; 23.—Common, and up to the perpetual snow.

S. aizoides; 72.—From Gudbrandsdal up to the snow-region.

Chrysosplenium alternifolium; 366.—By Kongsvold.

Umbelliferæ.

Carum Carvi; 1091.—By Jerkin and Kongsvold, but not above the birch-limit. Caraway-seeds are much used in Norway. They are put outside fancy-bread, on children's cakes; to flavour soup, etc. Then the Norwegian "aquavit," a very strong, white spirit, distilled from corn or potatoes, and on which the Norseman gets drunk, is flavoured with caraway. The flavour it gives to bread is by no means disagreeable.

Pimpinella saxifraga; 669.—The same as the foregoing.

Angelica sylvestris; 1639.—Over the whole fjeld, up to the birch-limit, by Tofte and Drivdalen.

Archangelica officinalis; 206.—Here and there; plentiful near Kongsvold and in Drivdalen.

Heracleum Sphondylium.—By Jerkin, Kongsvold, and in Drivdalen.

Anthriscus sylvestris; 2050.—Found in places all over the fjeld.

Corneæ.

Cornus Suecica; 5.—Near Drivstuen, in Drivdalen; does not reach the birch-limit.

CAPRIFOLIACEÆ.

Linnæa borealis; 3.—Found here and there up to the birch-limit.

RUBIACEÆ.

Galium uliginosum; 1509.—By Fogstuen and Kongsvold, below the birch-limit.

G. verum; 1146.—By Tofte, Rustgaard, and Drivstuen.

G. boreale; 1024.—Common in meadows by Jerkin and Kongsvold.

G. Aparine; 495.—In fields in the neighbourhood of Tofte.

VALERIANEÆ.

Valeriana officinalis; 570.—By Tofte, Kongsvold, and in Drivdalen, under the birch-limit.

DIPSACEÆ.

Scabiosa arvensis; 447.—By Tofte, near the birch-limit; by Rustgaard, Jerkin, Kongsvold, and in Drivdalen.

COMPOSITÆ.

Tussilago Farfara; 595.—Here and there all over the fjeld, up to the larger willows.

T. frigida; 61.—Here and there all over the fjeld, by Kongsvold, and up to the perpetual snow.

Erigeron acre.—Near Tofte, Jerkin, Kongsvold, and in Drivdalen.

E. alpinum; 292.—Common everywhere.

E. elongatum.—In birch woods all over the fjeld.

E. uniflorum; 1397.—Common on the highest parts of the fjeld, above the birch-limit.

Solidago virgaurea; 663.—Common up to the birch-limit.

Gnaphalium dioicum; 1228.—Common all over the fjeld, above the birch-limit.

G. alpinum. — Found close up to the perpetual snow.

G. sylvaticum; 1229.—Below Drivstuen in Drivdalen.

Chrysanthemum leucanthemum; 944.—By Vaarstien, below the birch-limit.

Matricaria inodora; 696.—Grows on sterile ground near Tofte, Jerkin, and Kongsvold.

Achillea Millefolium; 737.—Common, and above the birch-limit.

Artemisia vulgaris; 1176.—Near Tofte, Kongsvold, and in Drivdalen, below the birch-limit.

A. Norvegica; 801.—Common by Kongsvold, and in Drivdalen.

Tanacetum vulgare; 871.—Between Laurgaard and Tofte.

Arctium Lappa; 612.—Found in Drivdalen.

Carduus crispus; 621.—By Tofte and Kongsvold, and here and there in Drivdalen.

C. palustris.—By Tofte.

C. heterophyllus; 109.—Common up to the birch-limit.

Serratula alpina; 37.—Common to the birch-limit.

S. arvensis; 644.—In fields by Tofte.

Centaurea scabiosa; 1231.—By Tofte.

Sonchus arvensis; 606.—By Tofte, Rustgaard, and below Drivstuen to the limit of corn.

S. oleraceus; 682.—Same as the last.

S. alpinus; 182.—By Kongsvold, and here and there in Drivdalen.

Crepis tectorum; 501.—Found on the roofs of houses

by Tofte, Kongsvold, etc. Sparingly over the birch-limit.

Leontodon Taraxacum ; 574.—Common.

L. corniculatum.—On hills by Tofte, and on Harbakken.

Hieracium Pilosella ; 1110.—In the fir-regions in Drivdalen.

H. Auricula ; 1111.—Above the fir-limits in Drivdalen.

H. collinum.—Here and there in Drivdalen.

H. aurantiacum ; 1112.—Occasionally met with in meadows near Drivstuen.

H. alpinum ; 27.—All over the fjeld up to the larger willows.

H. murorum.—Found in various places.

H. prenanthoides.—Sparingly found near Kongsvold, more common near Drivstuen.

H. boreale.—Found in various places in Drivdalen.

H. umbellatum ; 680.—In places in Drivdalen, not above the birch-limit.

H. paludosum ; 928.—Found in meadows by Fogstuen and in Drivdalen.

Hypochœris maculata ; 249.—By Bergsgaard.

Apargia autumnalis ; 1996.—Over the whole fjeld.

Campanulaceæ.

Campanula uniflora ; 1512.—On Knudsö.

C. rotundifolia ; 1086.—Common all over the fjeld.

Vaccinieæ.

Vaccinium uliginosum ; 231.—Grows above the birch-limit.

V. Myrtillus ; 40.—Called *blaabær* here. Common

all over the fjeld. The berries are sent in barrels to England.

V. Vitis-idæa.—Common.

V. Oxycoccus; 80.—On Harbakken. Does not ripen there.

ERICINIEÆ.

Empetrum nigrum; 975.—Ripens above the birch-limit.

Arbutus Uva-ursi; 35.—Up to the perpetual snow.

A. alpina; 73.—Same as the preceding.

Pyrola rotundifolia; 1816.—Occasionally above the birch-limit.

P. minor; 55.—Found rather higher up than the preceding.

P. secunda; 402.—Up to the fir-limit in Drivdalen.

Andromeda polifolia; 54.—Grows up to the birch-limit.

A. hypnoides; 10.—Above the limit of birch up to the perpetual snow.

Erica vulgaris; 677.—Common, and just above the birch-limit.

Menziesia cærulea; 57.—From the region of spruce-fir in Gudbrandsdalen up to the perpetual snow.

Azalea procumbens; 9.—Common as far up as the snow.

GENTIANEÆ.

Menyanthes trifolia; 541.—As high up as Fogstuen.

Gentiana nivalis; 16.—Not higher than the birch-limit.

G. glacialis, Villars; 318.—Higher up the fjeld than the preceding.

G. campestris; 367.—Up to the birch-limit.

G. amarella; 328.—Is found up to and above the birch-limit.

POLEMONIDEÆ.

Polemonium cæruleum; 255.—Between Tofte and Lie, by Jerkin and Kongsvold, everywhere below the birch-limit.

BORAGINEÆ.

Lycopsis arvensis; 435.—Found in fields by Tofte.

Asperugo procumbens; 552.—Found near Tofte, Fogstuen, and Drivstuen.

Myosotis cæspitosa, Schultz.—Not found above the birch-limit.

M. arvensis.—Found in Drivdalen.

M. sylvatica; 583.—Found as high up on the fjeld as the larger willows. The limit of the larger willows is about 5000 feet, of snow about 5500 feet, above the sea-level.

M. deflexa; 1568.—Found between Kongsvold and Drivstuen in Drivdalen.

M. Lappula; 692.—Found on hills near Tofte.

ANTIRRHINEÆ.

Linaria vulgaris; 982.—Found occasionally in Drivdalen, but does not grow higher than the limit of barley.

RHINANTHACEÆ.

Melampyrum pratense; 2238.—Close up to the birch-limit near Jerkin and Kongsvold.

M. sylvaticum; 145.—The same as the preceding.

Pedicularis palustris; 2055.—Common up to the limit of birch.

P. Œderi, Vahl; 30.—On marshy ground all over the fjeld, up to the perpetual snow.

P. Lapponica; 2.—Same as the last.

Rhinanthus Crista-galli; 981.—Common up to the birch-limit.

Bartsia alpina; 43.—Common; grows beyond the birch-limit.

Euphrasia officinalis; 1037.—Common; varieties are found with very small flowers.

Veronica serpyllifolia; 492.—Up to and over the birch-limit.

V. alpina; 16.—Up as high as the larger willows.

V. saxatilis; 342.—Same as the last, but grows lower down.

V. officinalis; 248.—Common everywhere up to the birch-limit, but not beyond.

V. Chamœdrys; 448.—Near Rustgaard on Harbakken.

LABIATÆ.

Galeopsis Tetrahit; 1271.—Up to the barley-limit.

G. cannabina; 929.—About the same as the last.

Lamium purpureum; 523.—Common as far as Tofte.

Glechoma hederacea; 789.—Disappears between the road connecting Lie with Tofte; is found beneath the fir-limit.

Stachys palustris; 1103.—Not found beyond fields by Tofte.

Thymus Acinos; 814.—Near Tofte, and also near Drivstuen, in Drivdalen.

Dracocephalum Ruyschianum; 121.—Below the fir-limit in meadows near Tofte.

Prunella vulgaris; 910.—Common up to the birch-limit.

LENTIBULARIEÆ.

Pinguicula vulgaris; 93.—Common up to the perpetual snow-drifts.

P. villosa; 1921.—Common on the banks of small lakes near the farmhouse at Fogstuen.

PRIMULACEÆ.

Diapensia Lapponica; 47.—Occasionally found all over the fjeld on places exposed to wind and rain.

Androsace septentrionalis; 7.—Near Tofte, Kongsvold, Jerkin, and Drivstuen, but not above the birch-limit.

Primula farinosa; 125.—Common over the whole fjeld; occasionally found above the birch-limit.

P. stricta; 1385.—Here and there; on Harbakken, between Jerkin and Kongsvold, on the left side of the way.

Trientalis Europœa; 84.—Common, and over the birch-limit.

PLANTAGINEÆ.

Plantago major; 461.—Found on Harbakken, above Rustgaard.

P. media; 581.—Grows over the whole fjeld, but not found above the birch-limit.

CHENOPODEÆ.

Chenopodium album; 1150.—Found near Tofte.

POLYGONEÆ.

Rumex Acetosa.—Common; found above the birch-limit.

R. Acetosella; 1161.—By Jerkin, below the birch-limit.

R. domesticus.—Grows near houses by Jerkin and Fogstuen.

Oxyria digyna; 14.—Common over the whole fjeld, up to the perpetual snow.

Polygonum viviparum; 13.—Over the birch-limit; is often seen with pink flowers.

P. aviculare; 803.—Found above the birch-limit on Harbakken.

P. Convolvulus; 741.—Up to the barley-limit, by Tofte.

Kœnigia Islandica; 418.—Found everywhere on marshy ground.

Thymeleæ.

Daphne Mezereum; 268.—Above Rustgaard, on Harbakken.

Euphorbiaceæ.

Euphorbia helioscopia; 725.—Up to the limit of barley, by Tofte.

Urticeæ.

Urtica urens; 739.—Near mountain-hovels.

U. dioica; 746.—Near mountain-hovels, and more common than the last.

Amentaceæ.

Betula alba; 1467.—Up to Vaarstien on Dovrefjeld, 3193 feet above the level of the sea.

B. humilis.—Occasionally found on the fjeld.

B. nana; 91.—Grows everywhere on the fjeld up

to the perpetual snow, but is simply a bush in the last-mentioned spot.

Alnus incana.—In Drivdalen, some hundred feet above the fir-limit.

Populus tremula.—Is found as a bush near Kongsvold.

Salix pentandra; 943.—Between Tofte and Lie, and near Drivstuen.

S. glauca, β. Lapponum; 1058, *γ. appendiculata;* 1056, *δ. denudata.*—They grow over the whole fjeld, up to the perpetual snow.

S. lanata; 1057.—Same as the last-mentioned.

S. hastata; 1238.—Common over the whole fjeld, high above the birch-limit.

S. arbuscula; Fries.—Here and there in many places, above the birch-limit.

S. phylicifolia; 1052.—This, and many varieties, are found all over the fjeld.

S. caprea; 245.—Does not grow above the birch-limit.

S. depressa.—Same as the last.

S. limosa.—Very common all over the fjeld.

S. myrsinites; 1054.—Common.

S. pyrenaica Norvegica; Fries.—Sparingly near Fogsaaen, above Fogstuen.

S. reticulata; 212.—Up to and above the birch-limit.

S. herbacea; 117.—Common up to the perpetual snow.

S. polaris; Wahl.—Not so common as the last, but is found in many places, and up to the perpetual snow.

CONIFERÆ.

Juniperus communis; 1119.—Is found high above the birch-limit.

Pinus sylvestris.—Its highest growth is between Lie and Fogstuen.

ALISMACEÆ.

Triglochin palustre; 490.—Found somewhat above the birch-limit.

POTAMEÆ.

Potamogeton gramineum.—Found in Lake Vola.

ORCHIDEÆ.

Orchis maculata; 933.—On marshy ground up to and beyond the birch-limit.

O. cruenta; 876.—At Bergsgaard up to the birch-limit.

Satyrium albidum; 115.—Here and there in marshy places up to the birch-limit.

S. viride; 77.—Common; often found above the birch-limit.

S. nigrum; 998.—Scarce.

S. conopseum; 224.—Common all over the fjeld, and above the birch-limit.

Ophrys alpina; 452.—Common on the hills above Tofte.

Serapias latifolia; 811.—Rarely found; occasionally to be met with near Bergsgaard.

Listera cordata, Smith; 1298.—Grows near Volasöberg.

Neottia repens, Swartz; 812.—Is found below the mill, by Tofte.

ASPARAGEÆ.

Paris quadrifolia; 139.—As high as the fir-limit, between Kongsvold and Drivstuen.

Convallaria majalis; 854.—Near Tofte and Drivstuen, up to the birch-limit.

C. verticillata; 86.—Up to the fir-limit, in Drivdalen.

Majanthemum bifolium, De Candolle; 291.—Above the fir-limit, in Drivdalen.

COLCHICACEÆ.

Tofieldia borealis, Wahl.; 36.—Common; grows above the birch-limit.

JUNCEÆ.

Juncus arcticus, Willdenow; 1095.—Very common.

J. filiformis; 1207.—Here and there all over the fjeld.

J. ustulatus, Hartmann.—Common, but is not found above the birch-limit.

J. Stygius.—Has been found between Kongsvold and Snæhätten.

Snæhätten is one of the most celebrated mountain peaks in Norway, and rises from the lowlands of the Dovre-fjeld. Three valleys meet at its base. It was for a long time supposed to be the highest mountain in this country; then to Skagstol-Tind, in the Horungerne-fjeld, was assigned the pre-eminence; now it is stated, on unquestionable authority, that the Gallopigen, in the Horungerne-fjeld, is the highest mountain peak in this country. It is 9000 feet above the level of the sea.

J. biglumis; 120.—Very common; grows above the birch-limit.

J. triglumis; 132.—Same as the preceding.

J. trifidus; 107 and 1691.—Very common; above the birch-limit.

J. bufonius; 1098.—Up to the fir-limit.

Luzula pilosa, Willdenow.—Grows up to the birch-limit, by Fogstuen.

L. parviflora; 1929.—Here and there over the whole fjeld, up to the willow-limit.

L. campestris; 1333.—Grows, with its varieties, in Drivdalen.

L. hyperborea, Brown, 'Parry's Voyage,' page 283; Fl. D. 1386.—Common over the whole fjeld, up to the limit of the larger willows.

L. arcuata, Hartmann.—Only found on the highest parts of the fjeld, in the region of perpetual snow.

L. spicata; 270.—Very common all over the fjeld, but not much above the birch-limit.

Typhaceæ.

Sparganium natans; 360.—In Lake Vola.

Cyperaceæ.

Scirpus cæspitosus.—Up to and above the birch-limit. Common.

S. Bœothryon, Ehrhart; 1862.—Found occasionally by Fogstuen and Kongsvold up to the birch-limit.

S. palustris; 273.—Found in a pond by the wayside, below Tofte.

Eriophorum alpinum; 620.—Here and there all over the fjeld, *e. g.,* on Harbakken, by Fogstuen, Kongsvold, Jerkin, and Drivstuen.

E. capitatum, Hoffmann; 1502.—Up to the perpetual snow, and down to the fir-region.

E. vaginatum; 236.—Over the whole fjeld, a little above the birch-limit.

E. angustifolium; 1442.—Here and there all over the fjeld, about as high as the preceding.

E. latifolium; 1381.—Same as the last.

Kobresia scirpina, Willdenow; 1529.—Here and there on Harbakken, Jerkindshaso, Gederyggen, and by Kongsvold.

K. caricina, Willd.—Found growing on peat soil near Tofte, and on marshy ground on Harbakken.

Carex dioica; 369.—Common all over the fjeld, and above the birch-limit.

C. parallela, Sommerfeldt.—Not so common as the preceding. Found in damp places and in meadows.

C. capitata; 2061.—Scarce; also found on marshy ground between Fogstuen and Jerkin.

C. rupestris, Allioni; 1401.—Found here and there on the road over Harbakken.

C. microglochin; 1402.—Common on marshy ground between Harbakken and Drivstuen.

C. incurva, Lightfoot; 432.—Here and there in marshy places below the birch-limit.

C. chordorrhiza; 1408.—In marshy places over the whole fjeld, up to the birch-limit.

C. lagopina; 294.—Grows up to the larger willows.

C. loliacea; 1403.—In the fir-region, between Lie and Fogstuen.

C. canescens; 285.—Common, with its variety, *β. alpicola,* above the birch-limit.

C. flava; 1047.—By Kongsvold, Tofte, and in Drivdalen.

C. filiformis; 379 and 1344.—Near Fogstuen, Jerkin, and Kongsvold, up to the birch-limit.

C. rotundata; 1407.—Here and there in company with *C. pulla.*

C. capillaris; 168.—Is found above the limit of birch.

C. ustulata; 1590.—Common from the fir-limit up to the perpetual snow.

C. frigida; Hartmann.—Here and there on the highest parts of the fjeld, up to the perpetual snow.

C. panicea; 261.—Common, with its varieties, up to and beyond the birch-limit.

C. ornithopoda; 1405.—Grows on hills near Tofte.

C. ericetorum; 1765.—Common over the whole fjeld, and above the birch-limit.

C. alpina; 403.—As the preceding.

C. atrata; 158.—Common up to the limit of birch.

C. Buxbaumii; 1406.—Here and there in marshy places near Fogstuen, Jerkin, and Kongsvold.

C. pallescens; 1050.—Scarce, and not high up on the fjeld.

C. limosa; 646.—Sparingly found, with its varieties, over the whole fjeld.

C. ampullacea; 2248.—Near Kongsvold and Fogstuen.

C. vesicaria; 647.—As the preceding.

C. aquatilis.—In marshes below Fogstuen.

C. saxatilis; 159.—Very common up to the perpetual snow.

C. cæspitosa; 1281.—Here and there over the whole fjeld, and above the limit of birch.

C. pulla, Goodenough.—Very common up to perpetual snow.

GRAMINEÆ.

Alopecurus geniculatus; 861.—Common by the sides of roads. Found in a small sheet of water at the foot of Blaahö, above the birch-limit.

Phleum pratense; 1985.—Here and there at low altitudes.

P. alpinum; 213.—Very common.

Phalaris arundinacea; 259.—Found on the banks of the river above Drivstuen.

Holcus atropurpureus, Wahl.; 961.—Scarce. Found on the road between Lake Vola and Blaahö.

Anthoxanthum odoratum; 666.—Very common, and high above the birch-limit.

Milium effusum; 1143.—Grows in Sprænbækdalen, and up to the birch-limit.

Phippsia algida, Brown.—Up to the perpetual snow on Knudshö and Nystuhö.

Agrostis rubra.—Here and there below the birch-limit.

A. alpina, Scop.—Common over the whole fjeld, above the limit of birch.

A. canina; 1443.—By Jerkin, Kongsvold, and in Drivdalen.

Calamagrostis Halleriana, De Candolle.—By mountain streams near Drivstuen.

C. epigeios, Roth.; 2, 165.—Grows in a meadow below Tofte, and by the side of the road between Tofte and Lie.

C. stricta; 1803.—Common as high up as the birch-limit.

C. sylvatica, De Candolle; 1683.—Common.

Aira cæspitosa; 240.—Plentiful up to the limit of birch.

A. alpina; 1625.—Is found high above the birch-limit.

A. flexuosa; 157.— Common.

A. subspicata; 228.—As the last.

Avena pubescens; 1203.—Has been found high above where the birch grows.

Poa annua; 1686.—Common near cultivated places.

P. laxa, Hænke; 2342.—Common up to the larger willows.

P. flexuosa, Wahl.—Found on Goutstifjeld, Blaahö, Knudshö, and Nystuhö.

P. alpina; 807.—Common all over the fjeld, above the birch-limit.

P. trivialis; 1685.—In moist and shady places in Drivdalen.

P. pratensis; 1444.—Found, with its varieties, in grassy spots, and by the roadsides in certain localities. Wahlenberg's *iantha* is found high above the birch-limit.

P. nemoralis; 749.—Common in shady places in Drivdalen.

P. cæsia, Smith.—Common near Kongsvold.

Glyceria distans, Wahl.; 251 and 2222.—Found near Tofte and Jerkin.

Catabrosa aquatica, De Beauvois; 381.—On marshy ground near Tofte.

Melica nutans; 962.—Up to the birch-limit.

Molinia cærulea, Mönch; 239.—Below the birch-limit, in Drivdalen.

Dactylis glomerata; 743.—Up to the fir-limit.

Festuca ovina.—Common over the whole fjeld.

F. rubra.—Common above the birch-limit; a variety, *β. subvillosa,* is found near Fogstuen and Kongsvold.

F. elatior; 1323.—Common.

Triticum repens; 748.—In Drivdalen.

T. violaceum, Hornem.; 2044.—Is common in the higher parts of Drivdalen.

T. caninum; 1447.—Here and there in shady spots in Drivdalen.

Nardus stricta; 1022.—Common all over the fjeld, and above the birch-limit.

EQUISETACEÆ.

Equisetum arvense; 2001.—Here and there over the whole fjeld, up to the limit of the larger willows.

E. sylvaticum; 1182.—In Drivdalen over the fir-limit.

E. umbrosum; 1780.—Same as the preceding.

E. palustre; 1183.—In moist and marshy places.

E. hyemale; 1409.—Scarce. Found in Drivdalen, and near Kongsvold and Jerkin.

E. variegatum, Willd.; 2490.—Same as the last.

E. scirpoides, Willd.—Common on the highest parts of the fjeld.

I have been much indebted to Professor Blytt's 'Botanisk Reise,' in obtaining trustworthy information on the flora of the Dovre-fjeld.

THE FERNS OF NORWAY.

Polypodium vulgare.—Common on stony and rocky places in various parts, as far north as East Finmark. Is found up to and above the birch-limit in the Dovre-fjeld.

P. Phegopteris.—Common in all Norwegian woods. It is to be met with in the woods round Christiania, and near Alten and Hammerfest in Finmark. Is occa-

sionally met with in Drivdalen, but is by no means so common in the Dovre-fjeld as the preceding.

P. Dryopteris.—Found in shady spots from Christiania up to Throndjem. Rarely seen in Finmark. In the Dovre-fjeld up to, and sometimes above the birch-limit.

P. Robertianum.—Grows in rocky limestone soils from Christiania as far north as Throndjem, but no farther north.

P. Rhœticum.—Common in all mountain regions, from the extreme south to the far north. It is found upwards of 4000 feet above the level of the sea.

Woodsia Ilvensis.—Grows in the mountain regions from Christiansand up to East Finmark. Although scattered over the whole country, it is by no means common, and is generally found in the moist crevices in rocks. Professor Blytt says that it grows in the fir region in Drivdalen.

W. hyperborea.—Much the same as the last, but is rather more common.

Lycopodium clavatum.—Found in the region of fir in the Dovre-fjeld, and in mountain morasses in Finmark. It is said that the Lapps adorn their children's heads with chaplets made from this species, and that the spikes of the plants, projecting on all sides, remind those singular little people of fairies.

L. annotinum.—This rare fern is found in many of the Norwegian pine-forests. Found in woods in Drivdalen. A variety, *L. alpestre,* Hartmann, is found all over the Dovre-fjeld, up to the willow-limit.

L. Selago.—Common in the Dovre-fjeld, up to the perpetual snow. It is supposed to possess medicinal virtues, and being a powerful irritant, it is used in

Sweden and Norway as a decoction wherewith to get rid of vermin in cattle.

L. inundatum.—Grows on the banks of lakes in the south of Norway.

Ophioglossum vulgatum.—This small fern is found in moist places on the shores of some of the Norwegian fjords.

Botrychium Lunaria.—Is pretty common all over the country, even in the north. In the Dovre-fjeld it is found by Kongsvold, and in Drivdalen.

B. rutaceum.—Less common than the preceding. Grows near Christiania and in Gudbrandsdalen.

Blechnum Spicant.—Common in some parts of the west of Norway, and in Finmark. Found in the Dovre-fjeld as high as the fir grows.

Cystopteris fragilis. — The brittle bladder-fern is pretty common in all damp places in the Norwegian fjelds.

C. montana.—Common in moist places in the Dovre-fjeld; near Kongsvold and in Drivdalen.

C. crenata.—This rare fern is said to be found in only one or two places in Gudbrandsdalen, viz. near Kringelen and Vig.

C. regia.—Found in alpine regions in the south of Norway. I have seen it at Bærum, seven English miles from Christiania.

Lastrea Thelypteris.—Found in marshy places. I have seen it near Christiania.

Polystichum Filix-mas.—Common all over the country up to East Finmark. Is found in Drivdalen above the fir-limit.

P. cristatum.—Is common in the vicinity of Christiania.

P. spinulosum, De Candolle.—Is found in Drivdalen as high as the fir-limit.

P. dilatatum.—Professor Blytt calls this a variety of the preceding. It is found in Drivdalen up to the fir-limit.

P. rigidum, De Candolle.—A very rare fern in this country.

Aspidium Lonchitis.—Found in rocky places up to the birch-limit in the Dovre-fjeld.

A. angulare.—This rare species is to be found near Christiania, Bergen, and Throndjem. The last-mentioned locality appears to be its limit northwards.

Asplenium Adiantum-nigrum.—Grows in sandy and rocky spots in the south-west of Norway.

A. Filix-fœmina.—Common in moist places in the woods in all parts, even in East Finmark. Grows on the mountains up to the limit of fir.

A. Trichomanes. — Common in sheltered places among rocks up to the southern part of Nordland.

A. viride.—Common in the Dovre-fjeld up to the birch-limit. Is found in the southern parts of Finmark.

A. Ruta-muraria.—This diminutive plant grows on old walls, and in the fissures of rocks, near Christiania, Bergen, and near Alten in Finmark.

A. septentrionale.—Is common in all rocky and stony places in this country. Is found in East Finmark, and in the Dovre-fjeld above the birch-limit.

A. Breynii, Retz.—Scarce. Is not found higher north than Throndjem. I have seen it also on Næsodon, a peninsula running into the fjord near Christiania.

Pteris aquilina.—Found in rocky places as far north as Nordland.

Adiantum Capillus-Veneris.—Only to be met with in one or two sheltered places in the extreme south of Norway.

Allosorus crispus.—The mountain parsley grows on all rocky places in the west of Norway, and in Thelemarken.

Hymenophyllum Wilsoni.—Found on moist ground on rocks near Christiansand and Bergen.

Scolopendrium vulgare.—This fern has only recently been discovered in Norway. It grows on old walls.

Equisetum variegatum. — The variegated rough Horsetail may be placed among the Norwegian ferns. It is found by some of the Norwegian rivers and lakes.

THE END.

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